Pennsylvania Nonpoint Source Management Program

FFY2008 Annual Report

October 1, 2007 through September 30, 2008

Commonwealth of Pennsylvania
Department of Environmental Protection
Bureau of Watershed Management, Division of Watershed Protection

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EXECUTIVE SUMMARY

Purpose and Scope

This Nonpoint Source (NPS) Management Program Annual Report is a summary of the Commonwealth's efforts to implement the *NPS Management Program Plan-2008 Update* during federal fiscal year (FFY) 2008. The Annual Report includes the following three primary areas:

- Section 1.0 Water Quality Improvements,
- Section 2.0 NPS Management Program Plan Accomplishments, and
- Section 3.0 Watershed Improvement Stories

The Pennsylvania Department of Environmental Protection (DEP) Nonpoint Source Liaison Work Group has for many years provided advice and input to the NPS Management Program. Membership on the Work Group includes environmental professionals and representatives from local, state and federal government, academia, private sector consultants, non-profit organizations and other interested parties. There are seven smaller groups within the NPS Liaison Work Group which address issues related to A*griculture, Construction and Urban Runoff, Hydromodification, Lakes, Land Disposal, Resource Extraction, and Silviculture*. These small work groups have provided significant input and direction to both the *NPS Management Program Plan-2008 Updat*e and the *FFY2008 NPS Annual Report*.

Nonpoint Source Pollution Problems and Causes

Water pollution sources are classified in two general categories: point and non-point sources. Point sources are those in which the polluting substances are conveyed into a body of water by a pipe or channel, such as sewage discharges, industrial waste discharges and storm or combined sewer outfall. Non-point sources are generally diffused discharges. Of the 16,121 miles identified as impaired by either point sources or nonpoint sources in the DEP 2008 Water Quality Assessment report, the most far-reaching impacts were due to nonpoint sources. The two dominant NPS water quality impairments in Pennsylvania continue to be abandoned mine drainage (AMD) and agricultural runoff.

DEP Watershed Assessment Program Status

Water quality assessments have been conducted for more 84,021 miles of Pennsylvania streams and 74,652 acres of lakes. A total of 68,670 assessed stream miles and 36,295 assessed lake acres support the federal "fishable and swimmable" goal and the *Aquatic Life Use* designated in state water quality standards. Approximately 15,000 stream miles, 13% of the total stream miles assessed, are identified as being impaired and not supporting the *Aquatic Life Use*. Approximately 5,593 acres of lakes, 7.5% of lake acres assessed, are impaired by specific pollutants and require a TMDL. Another 20,866 acres of lakes, 27.9% of lake acres assessed, are impaired for *Aquatic Life Use* by more generalized pollution and do not require a TMDL.

Nonpoint Source Management Program Plan-2008 Update

Section 319(h) of the federal Clean Water Act (CWA) authorizes the U.S. Environmental Protection Agency (EPA) to delegate to states the authority to carry out NPS management programs to restore and protect the water quality of streams, rivers, lakes, reservoirs and other surface waters within their borders. The EPA Region III approved Pennsylvania's first Nonpoint Source Management Program Plan in 1991, and authority to carry out the program was then delegated to the DEP. The plan provided a 5-year blueprint for NPS Program implementation. Pennsylvania completely revised its NPS Management Program Plan during the mid-1990s and the resulting document, 1999 NPS Management Program Update, was approved by the EPA in 1999.

This Plan was again completely revised during the period from 2004 to 2008. The current *NPS Management Program Plan-2008 Update* was approved by the EPA Region III Water Protection Division in late 2008. It is expected to guide Pennsylvania's NPS Program implementation through 2013 and perhaps beyond.

There are five primary goals that drive NPS Management Program Plan implementation. These five goals also provide the framework for the Objectives and Action Items that characterize the seven NPS program areas and form the basis for our annual report to the EPA Region III. The five primary goals are:

Goal 1
Improve and protect water resources as a result of nonpoint source program implementation efforts. Show water resource improvements by measuring reductions in sediments, nutrients and metals or increases in aquatic life use, riparian habitat, wetlands, or public health benefits. By 2012, through combined program efforts, remove 500 miles of streams and 1,600 lake acres that are identified on the State's Integrated List of All Waters as being impaired because of nonpoint sources of pollution.

Goal 2
Coordinate with conservation districts, watershed groups, local governments, and others in the development and implementation of 34 watershed implementation plans meeting EPA's Section 319 criteria to protect and restore surface and groundwater quality by 2012.

Goal 3
Improve and develop monitoring efforts to determine how projects and programs improve water quality and/or meet target pollution reductions including Total Maximum Daily Loads (TMDLs).

Goal 4
Encourage development and use of new technologies, tools, and technology transfer practices, to enhance understanding and use of techniques for addressing nonpoint source pollution.

Goal 5

Assure implementation of appropriate best management practices to protect, improve and restore water quality by using or enhancing existing financial incentives, technical assistance, education and regulatory programs.

The complete *NPS Management Program Plan-2008 Update* can be viewed on the DEP website, www.dep.state.pa.us, by clicking on Public Participation, Technical Guidance and ID#394-2000-002.

Accomplishments

The NPS Management Program annually provides a list of streams to the DEP Division of Water Quality Standards for potential reassessment. Numerous streams are currently in the process of being reassessed by DEP biologists to determine whether they have improved enough to be considered fully or partially restored and be reclassified on the State's list of impaired water bodies.

Two streams were judged to be fully restored during FFY 2008, bringing Pennsylvania's total featured on the EPA Headquarters Success Story web site to four. Partial restoration was documented in eight additional streams and water quality improvements were identified in nineteen. Section 1.0 of this report includes several tables summarizing key data for these water bodies as well as those reported for FFY 2006 and 2007.

The NPS Management Program documents nutrient, sediment, metal and acidity load reduction estimates for all of its Section 319-funded implementation projects from FFY2001 through FFY2008. Brief summaries of cumulative NPS load reduction estimates are provided in the two tables below. (Source: *Grants Reporting and Tracking System database, January 2009*) See Section 1.0 for additional details.

Nutrient and Sediment Load Reduction Estimates -- FFY2001-FFY2008

Nitrogen		**Phosphorus**		**Sediment**
Lbs/year	Tons/year	Lbs/year	Tons/Year	Tons/year
706,254	353	224,963	112	48,055

Metal and Acidity Load Reduction Estimates -- FFY2001-FFY2008

Iron		**Aluminum**		**Manganese**		**Acidity**	
Lbs/day	Tons/Yr	Lbs/day	Tons/yr	Lbs/day	Tons/yr	Lbs/day	Tons/yr
2,755	502	1,042	190	491	89	9,471	1,728

NPS pollutant load reductions are estimates only. In the past year, these cumulative estimates have changed as follows: Nitrogen + 2%, Phosphorus + 2%, Sediment -1%, Iron + 5%, Aluminum - 5%, Manganese < 1% and Acidity + 17%.

During FFY2008, Pennsylvania has made substantial progress in implementing its *Nonpoint Source Management Program Plan-2008 Update*. The NPS Liaison Work Group has met several times and reported on accomplishments in the areas of A*griculture,*

Construction and Urban Runoff, Hydromodification, Lakes, Land Disposal, Resource Extraction and *Silviculture*. These accomplishments are described in Section 2.0.

Section 2.0 also includes information on the State's Watershed Implementation Planning process through September 30, 2008. Twenty-two Watershed Implementation Plans (WIPs) have now been prepared and accepted by the EPA under Phases I and II of this process. Two WIPs have been completed under Phase III, with ten more plans being developed. All but two of the completed WIPs are currently being implemented with Section 319 and other sources of funding.

Pennsylvania's NPS Management Program activities are funded through several sources. Section 319 funding under the federal Clean Water Act equaled $5.7 million for FFY2008. This brings the total amount of Section 319 funding received by the DEP to nearly $74 million since the program began in 1991.

The Environmental Stewardship and Watershed Protection Act (Growing Greener) has provided over $200 million to local project sponsors since the inception of the Growing Greener program in 1999. A 2005 amendment created a $625 million bond program to provide six additional years worth of funding. Growing Greener II bond funds will help to restore or improve approximately 1,000 acres of wetlands, install or improve 1,100 miles of riparian buffers and improve 250 miles of abandoned mine drainage (AMD) impacted streams over four years. Section 2.0 includes information on sources and amounts of funding that help to implement Pennsylvania's NPS Management Program Plan.

As mentioned above, a number of streams have been identified that are beginning to show signs of water quality improvement where funding has been targeted to address NPS impairments. Fifteen new *Improving Watershed Stories* have been presented in Section 3.0 of this report, including graphical representations of pollutant load reductions achieved in each—a new feature this year. The entire collection of *Improving Watersheds Stories* prepared to date may be viewed on the DEP NPS Management Program website at http://www.depweb.state.pa.us/watershedmgmt/cwp/view.asp?a=1430&q=482303.

SECTION 1.0 -- WATER QUALITY IMPROVEMENTS

The Commonwealth of Pennsylvania is blessed with many streams, rivers, lakes, wetlands, tidal and great lakes shorelines and groundwater resources. There are approximately 86,000 miles of streams, 1,420 lakes and many acres of fresh water wetlands located within the Commonwealth's borders. Pennsylvania's lakes cover approximately 161,455 surface acres. The state's fresh water wetlands include approximately 403,924 acres.

The information included in this section includes accomplishments documented by Pennsylvania's NPS Management Program. We have included what we believe to be relevant data supporting NPS Program efforts to improve water quality in our surface waters. Many of these improvements have been made possible with funding through the federal Clean Water Act (CWA) Section 319 NPS Management Program, the Commonwealth's Growing Greener Environmental Stewardship Initiative, and other local, state and federal programs that help to protect surface waters and restore nonpoint source impaired watersheds.

We have included new water bodies that we have reason to believe have improved in water quality during the FFY2008 period. We have also retained all references to water bodies that were originally included in Pennsylvania's FFY2005, 2006 and 2007 NPS Annual Reports.

1.1 Background

The *2008 Integrated List of All Waters* (formerly known as the 303(d) Report) contains a summary of the state's water quality assessment program data and provides information summarizing the state of Pennsylvania's waters. We use this document to help us document baseline conditions. The *2008 Integrated List of All Waters* can be found on the Pennsylvania DEP website, http://www.dep.state.pa.us, under the heading 'Water Topics' by selecting 'Water Quality'.

Pennsylvania's *2008 Integrated List of All Waters* includes several lists showing the attainment or impairment status of the state's water bodies:

List 1: All Uses Attained
List 2: At Least One Use Attained
List 3: Unassessed
List 4: Impaired for One of More Designated Uses, Not Needing a TMDL
List 5: Pollutants

Pennsylvania focuses most NPS restoration efforts to waters identified in Lists 4 and 5 and to water bodies where a TMDL is required or has been completed and a WIP has been developed.

1.2 Surface Water Assessment Program Status

Pennsylvania's water quality assessment program has documented the following six sources of pollution as major NPS impairments to the Commonwealth's waterways:

1. Abandoned Mine Drainage (AMD)
2. Agriculture
3. Urban Runoff/ Storm Sewers
4. Road Runoff
5. Small Residential Runoff
6. Atmospheric Deposition

The three major sources of *Aquatic Life Use* impairments to streams are abandoned mine drainage, agriculture and urban runoff/storm sewers.

The two major sources of *Aquatic Life Use* impairments to lakes are agriculture and atmospheric deposition (mercury).

Pennsylvania's *2008 Integrated Water Quality Monitoring and Assessment Report* (formerly known as the 305(b) report) includes a summary of statewide water quality assessment data. Table 1-1 and Table 1-2 summarize this data, for streams and lakes respectively, in the following four designated use categories:

1. Aquatic Life Use
2. Fish Consumption Use
3. Recreational Use
4. Potable Water Supply Use

Table 1-1 shows that 15,294 stream miles of 84,021 assessed have been documented as being impaired for *Aquatic Life Uses*. That means that a little more than 18% of the total stream miles assessed have been identified as being impaired. Conversely, nearly 82% of the total stream miles assessed for *Aquatic Life Use* are identified as supporting their designated use.

Table 1-1: Statewide Water Quality Assessment Data – Streams

	Designated Use Category			
Stream Miles	**Aquatic Life Use**	**Fish Consumption Use**	**Recreational Use**	**Potable Water Supply Use**
Assessed	84,021	2,381	627	1,569
Supporting	68,670	590	365	1,445
Impaired, Needing TMDL	11,276	1,080	244	88
Impaired, Approved TMDL	3,283	711	8	36
Compliance Issues	57	---	---	---
Pollution Impairments*	2,311	---	---	---

(Source: *2008 Pennsylvania Integrated Water Quality Monitoring and Assessment Report*)

*Impaired, but not by a specific pollutant and not requiring a TMDL. A total of 1,576 stream miles have both pollution and pollutant problems.

Table 1-2 shows that 74,652 acres of Commonwealth lakes have been assessed for the *Aquatic Life Use*. Of these 38,357, or just over 51% of lake acres assessed, are impaired**.** There are 36,295 lake acres, or nearly 49% of those assessed, that are supporting their designated use.

Table 1-2: Statewide Water Quality Assessment Data – Lakes

	Designated Use Category			
Lake Acres	**Aquatic Life Use**	**Fish Consumption Use**	**Recreational Use**	**Potable Water Supply Use**
Assessed	74,652	36,057	70,306	11,469
Supporting	36,295	2,987	68,657	11,469
Impaired, Needing TMDL	5,593	27,587	1,649	---
Impaired, Approved TMDL	11,898	5,483	---	---
Pollution Impairments*	20,866	---	---	---

(Source: *2008 Pennsylvania Integrated Water Quality Monitoring and Assessment Report*)

*Impaired, but not by a specific pollutant and not requiring a TMDL.

1.3 Nonpoint Source Impaired Waters Delistings

The EPA has identified several short-term and long-term goals for tracking improvements to our nation's waterways. The following two goals are included in the EPA's National Strategic Plan. The Agency used a baseline of 5,967 primarily NPS-impaired water bodies for this purpose.

1. 250 water bodies restored by 2008, and
2. 700 water bodies restored by 2012

Water bodies both ***fully restored*** and ***partially restored*** from nonpoint sources of pollution are being tracked. These terms are defined in Table 1-3.

Table 1-3: Definitions of Terms

Term	Definition
Fully Restored	A water body where all sources of impairment have been addressed and the water body has been fully restored. All designated uses are now being achieved.
Partially Restored	A water body that is impaired by more than one sources or for more than one designated use, and where one or more (but not all) of these sources has been addressed
Water body	A listed stream segment.

Pennsylvania is using a process to identify and reassess waters where we feel there is a good chance of a water body meeting its designated use(s) to track progress in achieving these goals.

Tables 1-4 through 1-8 include information on water bodies identified as both *fully restored* and *partially restored.* The sources and causes of NPS impairments are also included. In all cases, the *Aquatic Life Use* is the designated use for the purpose of identifying a fully or partially restored water body.

The water bodies shown in Tables 1-4 and 1-5 were approved for delisting and officially removed from Pennsylvania's impaired waters list when the State's *Integrated List of All Waters* was published in 2006 and 2008. These four delistings total 28 miles of restored streams.

The waters identified in Tables 1-6 through 1-8 are candidates for partial delisting. These water bodies have not yet gone through the entire delisting process. The DEP Division of Water Quality Standards takes official action to remove these water bodies from the State's list of impaired waters.

1.3.1 Pennsylvania Stream Codes Methodology

In 2005-2006, the United States Geological Survey (USGS) and contractors assisted the DEP in adopting a new nomenclature for identifying stream reaches. The DEP adopted the 1:24,000 National Hydrographic Database (NHD) streams coverage layer to better identify stream reaches and be consistent with the national system. The NHD is aggregated by Hydrologic Unit Code (HUC) watersheds which are now used to group streams together. This system has replaced the old system which used Segment IDs and five-digit DEP Stream Codes. The new NHD streams layer is based upon national geo-database standards. The new system is attributed by stream name or a fixed combination of NHD fields known as the *Reachcode* and *Com_ID*.

In addition, Pennsylvania began using a more specific method to identify stream segments in the state. This method uses the *Com_ID* as a numeric identifier for specific stream

segments. The *Com_ID* identifier is included for all stream segments listed in Pennsylvania's *2008 Integrated List of All Waters*. It was first utilized in the *2006 Integrated List of All Waters*.

Table 1-4: Fully restored water bodies - FFY2006

Water body Name and (County)	Sec. 319 funds used (Yes or No)	319 Grant Year/ Project Number(s)	Impairment Source and (Cause)	Year First Listed as Impaired	Hydrologic Unit Code (HUC)	NHD Reach Code/ Com_ID
FFY2006						
Manatawney Creek (Berks, Montgomery)	Yes	FFY2000/ 44	Agriculture (Nutrients, Organic Enrichment, Low D.O.)	1996	02040203	02040203000103/ 25965530
UNT to Manatawney Creek (Berks, Montgomery)	Yes	FFY2000/ 44	Hydromodification (Thermal Modification)	1996	02040203	02040203002507/ 25965244

Table 1-5: Fully restored water bodies – FFY2008

Water body Name and (County)	Sec. 319 funds used (Yes or No)	319 Grant / Project Number	Impairment Source and (Cause)	Year First Listed as Impaired	Hydrologic Unit Code (HUC)	NHD Reach Code/ Com_ID
FFY2008						
Semiconon Run (Butler)	No	n/a	AMD (Metals)	2002	05030105	05030105000787/ 126218422
Step Run (Clarion)	No	n/a	AMD (pH)	2006	05010005	05010005000441/ 102668735

n/a = does not apply to this project

Table 1-6: Partially restored water bodies – FFY2006

Water body Name and (County)	Sec. 319 funds used (Yes or No)	319 Grant Year/ Project Number	Impairment Source and (Cause)	Year First Listed as Impaired	Hydrologic Unit Code (HUC)	NHD Reach Code and Com_ID
FFY2006						
Mt. Rock Spring Creek (Cumberland)	Yes	FFY1999/ 20	Agriculture (Nutrients)	1996	02050305	02050305000841/ 56407741
North Branch Straight Run (Indiana)	No	n/a	AMD (Siltation)	2006	05010006	05010006001231/ 123853442

n/a = does not apply to this project

Table 1-7: Partially restored water bodies – FFY 2007

Water body Name and (County)	Sec. 319 funds used (Yes or No)	319 Grant Year/ Project Number	Impairment Source and (Cause)	Year First Listed as Impaired	Hydrologic Unit Code (HUC)	NHD Reach Code and Com_ID
FFY2007						
Babb Creek (Tioga)	No	n/a	AMD (Metals)	1998	02050205	02050205000062/ 66539649
Gilmore Run (Venango**)**	No	n/a	AMD (Metals)	2004	05010003	05010003000510/ 100479739
Lick Creek (Tioga)	Yes	FFY1999/ 65 FFY2000/ 25 FFY2002/ 18 FFY2005/ 01	AMD (Metals, pH)	1996	02050205	02050205000236/ 66537093
Longs Run (Bedford)	Yes	FFY2004/ 20	AMD (Metals, pH)	1996	02050303	02050303000433/ 65844151
Parks Run (Jefferson)	No	n/a	AMD (pH)	1996	05010005	05010005001066/ 102669443
Upper Mill Creek (Jefferson)	Yes	FFY2005/ 29	AMD (Metals)	1996, 2002, 2004, 2006	05010005	05010005000289/ 102669445
Upper Swatara Creek (Schuylkill)	Yes	FFY2000/ 16 and others	AMD (Metals, pH)	1996	02050305	02050305001269/ 56395237
Wells Creek (Somerset)	Yes	FFY2003/ 22 FFY2003/ 23	AMD (Metals)	1996, 2002	05010007	05010007000399/ 123722467

n/a = does not apply to this project

Table 1-8: Partially restored water bodies – FFY2008

Water body Name and (County)	S. 319 funds used (Yes or No)	319 Grant Year/ Project Number	Impairment Source and (Cause)	Year First Listed as Impaired	Hydrologic Unit Code (HUC)	NHD Reach Code and Com_ID
FFY2008						
Aylesworth Creek (Lackawanna)	No	n/a	AMD (Metals, pH)	1996	0205017	02050107000232/ 133507397
E. Br. Clarion River (McKean)	No	n/a	AMD (pH)	2006	05010005	05010005000102/ 102662717
Gum Boot Run (McKean)	No	n/a	AMD (pH)	2004	05010005	05010005000738/ 102662633
Kimber Run (Bedford)	No	n/a	AMD (pH)	1996	02050303	02050303000434/ 65844741
Laurel Run (Indiana)	No	n/a	AMD (metals)	2006	05020007	05010007000723/ 123714948006
Sacony Creek (Berks)	No	n/a	Erosion from Derelict Land (Siltation)	2004	02040203	02040203000437/ 25978380
Shreves Run (Bedford)	Yes	FFY2006/ 15	AMD (Metals, pH)	1996	02050303	02050303000427/ 65843509
Sterling Run (Centre)	No	n/a	AMD (Metals, pH)	2002	02050202	02050201000511/ 61828805

n/a = does not apply to this project

1.4 Improvements to Nonpoint Source Impaired Waters

Tables 1-9 through 1-11 include information on *Stream Water Quality Improvements* from FFY2005 through FFY2008. These waters have been listed because they are reported to be showing signs of recovery by county conservation district staff, DEP regional office or district mining office staff, and/or local watershed organizations. These tables include NHD streams coverage layer, Hydrologic Unit Code (HUC), water quality impairments and project information. We anticipate that as we gather additional water quality and macroinvertebrate data from these waters, we will be able to document improvements, and some of these waters may be *fully or partially restored water bodies* in the future.

1.4.1 Water Quality Improvements in Streams

Pennsylvania's nonpoint source program is identifying Commonwealth surface waters that are showing signs of water quality improvements. Water quality improvements can occur both through natural processes and long-term watershed restoration programs.

Water quality improvements are documented by sampling stream chemistry and the return of aquatic species, i.e. macroinvertebrates or fish, to a stream ecosystem. Several steps are involved in the process of verifying water quality improvements in streams.

1. Referral and data collection

DEP's NPS Program staff works with conservation district watershed specialists, DEP regional offices, DEP district mining offices, DEP Bureau of Abandoned Mine Reclamation offices and the Eastern and Western Pennsylvania Coalitions for Abandoned Mine Reclamation, among others, to identify streams that may be improving as the result of local restoration efforts. Any available monitoring data is collected to allow a preliminary determination of the effectiveness of BMPs installed in the watershed. Following this initial review, a list of water bodies considered to be candidates for reassessment is provided to the DEP Water Quality Standards Division for their evaluation.

2. Stream Sampling

DEP water pollution biologists choose sampling locations and visit each water body on the list to determine if further sampling is warranted. Water bodies that appear to be minimally impaired are then subject to a chemical and biological sampling protocol that requires seven additional visits. After this sampling is completed and the data is analyzed, the water body is considered for removal from the State's list of impaired waters.

3. Removal from the List of Impaired Waters—3 Options
    - Stream conditions still exceed all water quality criteria.
      The stream will not be eligible for de-listing. Streams that are not revisited will be tracked for a revisit in the future (up to 5 years later) to determine if water quality has improved. These water bodies do not appear on any of the following tables.

- Stream conditions still exceed some water quality criteria, but attain one or more.
  The stream may be eligible for delisting for one or more causes of impairment, and an "*Improving Watershed Story*" may be written to summarize the basic details of the case. Section 3.0 of this report features 15 *Improving Watershed Stories* created by the NPS Program staff during FFY 2008.

- Stream conditions attain all water quality criteria.
  The water body can be removed from the impaired streams list for all causes of impairment. At this point a "*Success Story*" will be written and submitted to the EPA for posting on its national web site at http://www.epa.gov/nps/success/.

Table 1-9: Stream Water Quality Improvements – FFY2006

Water body and (County)	Sec. 319 funds used (Yes or No)	319 Grant / Project Number	Impairment Source and (Cause)	Year First Listed as Impaired	Hydrologic Unit Code (HUC)	NHD Reach Code and Com_ID
FFY2006						
Mt. Rock Spring Creek (Cumberland)	Yes	FFY1999/ 20	Agriculture (Siltation) Construction (Siltation)	1998 1998	02050305	02050305000841/ 56407741
Mt. Rock Spring Creek (Cumberland)	Yes	FFY1999/ 20	Agriculture (Siltation) Construction (Siltation)	1996 1998	02050305	02050305000842/ 56407709

Table 1-10: Stream Water Quality Improvement – FFY2007

Water body and (County)	Sec. 319 funds used (Yes or No)	319 Grant / Project Number	Impairment Source and (Cause)	Year First Listed as Impaired	Hydrologic Unit Code (HUC)	NHD Reach Code and Com_ID
FFY2007						
Benninger Creek (Elk)	No	n/a	AMD (Metals)	2002	05010005	05010005000965/ 102666801
Big Run (Butler)	Yes	FFY2004/ 23 FFY1996/ 18	AMD (Metals, Siltation)	2004	05030105	05030105000117/ 126221959
Coal Run (Bradford)	Yes	FFY2000/ 16 FFY1996/ 21	AMD (Metals, pH)	2002	02050106	02050106001011/ 66407497
Donegal Creek (Lancaster)	Yes	FFY1997/ 15	Agriculture (Suspended Sediment)	1996	02050306	07920
Glenwhite Run (Blair)	Yes	FFY1999/ 08 FFY1999/ 15	AMD (Metals) AMD (pH, Siltation AMD (Metals, pH)	1996 2002	02050302	02050302000382/ 65608026
Johnson Run (Elk)	No	n/a	AMD (Metals, pH)	2004	05010005	05010005000765/ 102667849
Lititz Run (Lancaster)	Yes	FFY1998/ 21 FFY1999/ 60 FFY2003/ 26	Agriculture (Nutrients, Sediment) Urban Runoff	2002 1996	02050306	07647 07646
Little Scrubgrass Creek (Venango)	No	n/a	AMD (Metals)	1996, 2004	05010003	05010003000294/ 100479593

n/a = does not apply to this project

Table 1-10: Stream Water Quality Improvements – FFY2007 (continued)

Water body and (County)	Sec. 319 funds used (Yes or No)	319 Grant / Project Number	Impairment Source and (Cause)	Year First Listed as Impaired	Hydrologic Unit Code (HUC)	NHD Reach Code and Com_ID
FFY2007						
Little Toby Creek (Elk)	Yes	FFY1992/ 07 FFY1992/ 12 FFY1999/ 18 FFY2000/ 12 FFY2002/ 16	AMD (Metals, pH, Suspended Solids)	1996, 2002, 2004, 2006	05010005	05010005000043/ 102668853
Long Valley Run (Bradford)	No	n/a	AMD (pH)	2004	02050106	02050106001008/ 66406453
Mead Run (Elk)	Yes	FFY1992/ 07	AMD (Metals, pH)	2002	05010005	05010005000268/ 102668297
Middle Creek (Schuylkill)	Yes	FFY1996/ 21 FFY2000/ 19 FFY2002/ 20, 25	AMD (Metals)	2004	02050305	02050305001808/ 133783950
Mill Creek (Clarion)	Yes	FFY1993/ 08 FFY1993/ 13 FFY1998/ 23	AMD (Metals)	1996	05610005	05010005000281/ 102669587
Miller Run (Huntingdon)	Yes	FFY2002/ 17, 34 FFY2004/ 19 FFY2005/ 21, 33	AMD (Metals, pH)	1996, 2006	02050303	02050303000420/ 65842287
McCune Run (Westmoreland)	No	n/a	AMD (Metals, pH, Suspended Solids)	1996, 2002, 2004	05010008	05010008000434/ 125292304

n/a = does not apply to this project

Table 1-10: Stream Water Quality Improvements – FFY2007 (continued)

Water body and (County)	Sec. 319 funds Used (Yes or No)	319 Grant / Project Number	Impairment Source and (Cause)	Year First Listed as Impaired	Hydrologic Unit Code (HUC)	NHD Reach Code and Com_ID
FFY2007						
Murrin Run (Butler)	No	n/a	AMD (Metals)		05030105	05030105000376/ 126223768
Roaring Run (Armstrong)	Yes	FFY2003/ 30	AMD (Metals, pH)	2004	05010008	05010008000157/ 125290640
Seaton Creek (Butler)	No	n/a	AMD (Metals, pH, Other Inorganics)	1996, 2004	05030105	05030105000203/ 126222903
Sugarloaf Creek (Schuylkill)	Yes	FFY2000/ 02 FFY1999/ 17	AMD (pH)	1996, 1998, 2006	02050107	02050107003701/ 65640741
Upper Slippery Rock Creek (Butler)	Yes	FFY2005/ 22, 24 FFY1996/ 20 FFY1997/ 18 FFY1998/ 13 FFY2006/ 30H	AMD (Metals, Siltation)	2004	05030105	05030105000373/ 126220032

n/a = does not apply to this project

Table 1-11: Stream Water Quality Improvements – FFY2008

Water body and (County)	Sec. 319 funds Used (Yes or No)	319 Grant / Project Number	Impairment Source and (Cause)	Year First Listed as Impaired	Hydrologic Unit Code (HUC)	NHD Reach Code and Com_ID
FFY2008						
Bachman Run (Lebanon)	Yes	FFY2003/ 34	Agriculture (Siltation)	1996	02050305	02050305001120/ 56399601
Beach Run (Lebanon)	No	n/a	Urban Runoff/Storm Sewers (Siltation)	1998	02050305	02050305001185/ 56395963
Bear Run Creek (Fulton)	No	n/a	AMD (Siltation)	2006	02050201	02070003000296/ 36406986
Brewster Hollow Run (Bedford)	Yes	FFY2005/ 12	Stream was never listed impaired	n/a	02050303	02050303000430/ 65843483
Coalpit Run (Cambria)	Yes	FFY2003/ 24	AMD (Metals, pH)	2006	05010007	05010007001287/ 123720827
Dents Run (Elk)	No	n/a	AMD (Metals, pH)	2002	02050202	02050202000329/ 61430342
Elizabeth Run (Lebanon)	yes	FFY2003/ 27	Agriculture (Nutrients, Siltation)	1998	02050305	02050305000395/ 56395961
Harveys Lake (Luzerne)	Yes	FFY2000/ 45 FFY2001/ 45 FFY2005/ 36 FFY2006/ 30J	On-site waste, stormwater runoff & stream bank erosion (Nutrients)	1996	02050107	02050104000357/ 133506802
Johnson Creek (Tioga)	Yes	FFY2003/ 18 FFY2005/ 16	AMD (Metals, pH)	2002, 2004, 2006	02050104	02050104000358/ 57353363

n/a = does not apply to this project

Table 1-11: Stream Water Quality Improvements – FFY2008 (continued)

Water body and (County)	Sec. 319 funds Used (Yes or No)	319 Grant / Project Number	Impairment Source and (Cause)	Year First Listed as Impaired	Hydrologic Unit Code (HUC)	NHD Reach Code and Com_ID
FFY2008						
Johnson Run (Elk)	No	n/a	AMD (Metals, pH)	2006	0501005	05010005000765/ 102663709
Lake Wallenpaupack (Wayne & Pike)	Yes	FFY1992/ 09 FFY1995/ 20	Agriculture (Nutrients and Suspended Solids) Mercury (Atmos. Dep.)	1996	02040103	02040103001053/ 120022795
Little Coon Run (Clarion)	No	n/a	AMD (Metals, pH)	2004	05010003	05010003001084/ 100475699
Middle Branch Huling Run (Clinton)	No	n/a	AMD (Metals)	1996	02050203	02050203000400/ 61115127
Stahle Run (Fulton)	No	n/a	Agriculture (Nutrients, Siltation)	2002	02070003	0207000300116/ 36406604
Tarkiln Run (Venango)	No	n/a	AMD (Metals)	2004	05010003	05010003000356/ 100477471
Tulpehocken Creek (Lebanon)	Yes	FFY1999/ 28	Agriculture, Urban Runoff/Storm Sewers (Nutrients, Siltation)	2004	02040203	02040203000250/ 25993526
Two Lick Creek (Indiana)	No	n/a	AMD (Metals, pH)	1996	05010007	05010007000202/ 123720041
Walley Run (Clarion)	No	n/a	AMD (Metals)	1996	05010003	05010003001087/ 100475749
Valley Creek (Chester)	Yes	FFY2003/ 28	Agriculture (Siltation)	2006	02060306	02050306000047/ 57465301

n/a = does not apply to this project

1.4.2 Water Quality Improvements in Lakes

Over the past several years a number of lakes have been re-categorized on Pennsylvania's Integrated List of All Waters. This change in classification is the result of a change in the application of the dissolved oxygen standard in Pennsylvania's *Chapter 93.Water Quality Standards*.

This change resulted in several lakes being removed from *List 4: Impaired for One or More Designated Uses, Not Needing a TMDL* (Category 4C: Pollution Impairments), and added to *List 2: At Least One Use Attained on Pennsylvania's 2006 Integrated List of All Waters*. Table 1-12 includes 2,834.9 lake acres that have been reclassified on the Integrated List.

Table 1-12: Reclassified Lakes on 2006 Integrated List of All Waters

Hydrologic Unit Code (HUC)	Name of Lake	Acres	Listing Date
FFY2006			
02040104	Lake Minisink	35	2002
02040203	Hopewell Lake	68	2002
	Scotts Run Lake	21	2002
	Trout Run Reservoir	42	2002
02040205	Marsh Creek Lake	535	2002
02050104	Beechwood Lake	67	2002
02050106	Cooks Pond	33	2002
	Lake Wesuking	57.8	2002
	Rockwell Pond	22.4	2002
	Unnamed (State Game Lands	18.9	2002
02050107	Curtis Reservoir	75	2002
	Dunmore Lake #7	17.4	2002
	Lake Scranton	225	2002
	Mountain Mud Pond	24.6	2002
02050305	Laurel Forge Pond	20	2002
02050206	Bear Wallow Pond	25	2002
	Elk Lake	31.5	2002
02050206	Hunters Lake	117	2002
02050302	Canoe Creek Lake	157.3	2002
05010005	Laurel Run Reservoir	100	2002
05010006	Kyle Lake	150	2002
05010007	Quemahoning Reservoir	900	2002
05030105	Lower Hereford Manor Lake	43	2002
	Thorn Run Reservoir	49	2002

1.5 Nonpoint Source Pollutant Load Reduction Estimates

Tables 1-13 and 1-14 represent the cumulative load reduction estimates for Pennsylvania's FFY2001 through 2008 Section 319 NPS Program grants. Information in these tables was extracted from the GRTS database and represents estimated load reductions ***through December 2008***. These tables do not include load reductions achieved by non-319 funded projects, which are not tracked by the NPS Management Program.

Load reductions are a combination of both PRE- implementation estimates for projects not yet completed and POST-implementation estimates for completed projects. Many FFY2007 and all FFY2008 projects have PRE-implementation load reduction estimates only. For many projects in the FFY2006 and 2007 grants, less than 100% of scheduled implementation work has been completed.

Most agricultural and hydro-modification projects will reduce nitrogen, phosphorus and or sediment pollutant loads. Abandoned mine drainage (AMD) load reductions for pollutants such as iron, aluminum, manganese and acidity are not required by the EPA but are reported since they are substantial and help achieve TMDL goals. AMD projects incorporate water quality monitoring and provide load reduction estimates in project work plans and final reports.

Some trends are becoming evident when one looks at the kinds of projects that have received funding since FFY2001. Nutrient load reductions have trended downward while sediment and AMD reductions have trended upwards. A greater proportion of AMD projects are being funded now than in FY2001. We also have much better methods to estimate AMD load reductions than we have for estimating nutrient reductions.

Over the past several years in Pennsylvania, many of our implementation projects have replaced PRE-implementation load reduction estimates in GRTS with POST-implementation estimates. In some cases the POST- implementation estimates have been much lower than originally anticipated due to design changes and changes in water quality monitoring techniques. Some errors were also made initially which have been corrected, including allocating load reductions to DESIGN-only projects which is not appropriate. Some of the total reductions shown in Tables 1-13 and 1-14 are therefore not significantly greater than they were in FY2007.

The AMD project units of measure are the same as those used in approved AMD Total Maximum Daily Loads (TMDLs). AMD load reductions are reported in *pounds per day* for iron (Fe), aluminum (Al), manganese (Mn) and acidity.

Appendix C provides more detailed load reduction data for all of Pennsylvania's FFY2001 and newer projects, up to and including FFY2008.

Table 1-13: Cumulative Load Reduction Estimates for Nitrogen, Phosphorus, Sediment and Total Suspended Solids

Grant Year	Nitrogen (N)		Phosphorus (P)		Sediment	Total Suspended Solids (TSS)
	lbs/year	tons/year	lbs/year	tons/year	tons/year	lbs/year
Closed Grants						
FFY2001	358,294	179	124,521	62	21,098	0
FFY2002	217,937	109	44,065	22	5,324	0
FFY2003	56,383	28	34,810	17	7,788	0
FFY2004	26,956	13	7,280	4	3,331	328
Grant Completed September 30, 2008						
FFY2005	23,293	12	7,245	4	3,061	0
Open Grants						
FFY2006	14,435	7	4,513	2	3,942	0
FFY2007	3,309	2	1,007	<1	1,432	0
FFY2008	5,647	3	1,522	1	1,098	0
Totals	**706,254**	**353**	**224,963**	**112**	**47,074**	**328**

Table 1-14: Cumulative Load Reductions Estimates for Iron, Aluminum, Manganese and Acidity

Grant Year	Iron (Fe)		Aluminum (Al)		Manganese (Mn)		Acidity	
	lbs/day	tons/year	lbs/day	tons/year	lbs/day	tons/year	lbs/day	tons/year
Closed Grants								
FFY2001	350	63	45	8	4	1	912	166
FFY2002	172	31	58	10	2	1	194	35
FFY2003	129	23	49	9	0	0	88	16
FFY2004	678	123	251	46	402	73	1,749	319
Grant Completed September 30, 2008								
FFY2005	973	177	287		63	11	3,956	539
Open Grants								
FFY2006	68	12	48	9	18	3	555	101
FFY2007	344	62	274	50	1	0	1620	296
FFY2008	41	7	30	5	1	0	397	73
Totals	**2,755**	**502**	**1,042**	**190**	**491**	**89**	**9,471**	**1,728**

SECTION 2.0 -- NONPOINT SOURCE MANAGEMENT PROGRAM PLAN ACCOMPLISHMENTS

2.1 Nonpoint Source Liaison Work Group Role

Pennsylvania's Nonpoint Source Liaison Workgroup played an instrumental role in developing the *Nonpoint Source Management Program Plan-2008 Update*. This resulted from meetings held by the Liaison Workgroup and the small Nonpoint Source workgroups over a four year period from 2004 to 2008.

There were several important documents used by the Liaison Workgroup that helped in this effort. One of these documents was the Environmental Protection Agency's (EPA) five-year planning document, *EPA National Strategic Plan (Plan),* published in September 2003. The EPA's *Plan* included seven criteria that state NPS programs were supposed to use for documenting and measuring water quality improvements. Those seven criteria are:

- Number of waters restored from all NPS program actions.
  (National goals are 250 water bodies by 2008 and 700 water bodies by 2012)
- Sediment load reductions
- Nitrogen load reductions
- Phosphorus load reductions
- Section 319 funds used to restore water bodies
- Watershed-based plans under development and being implemented, and
- Watershed-based plans substantially implemented.

The *Plan* was utilized by Pennsylvania's NPS Management Program to help develop long-term goals for the *NPS Management Program-2008 Update*. The *NPS Management Program-2008 Update* was developed and includes five overarching goals. Those five goals are:

Goal 1

Improve and protect water resources as a result of nonpoint source program implementation efforts. Show water resource improvements by measuring reductions in sediments, nutrients and metals or increases in aquatic life use, riparian habitat, wetlands, or public health benefits. By 2012, through combined program efforts, remove 500 miles of streams and 1,600 lake acres that are identified on the State's Integrated List of All Waters as being impaired because of nonpoint sources of pollution.

Goal 2

Coordinate with watershed groups, local governments, and others in the development and implementation of 20 watershed implementation plans meeting EPA's Section 319 criteria to protect and restore surface and groundwater quality.

Goal 3

Improve and develop monitoring efforts to determine how projects and programs improve water quality and/or meet target pollution reductions including TMDLs.

Goal 4

Encourage development and use of new technologies, tools, and technology transfer practices, to enhance understanding and use of techniques for addressing nonpoint source pollution.

Goal 5

Assure implementation of appropriate best management practices to protect, improve and restore water quality by using or enhancing the existing financial incentives, technical assistance, education and regulatory programs.

These five goals provided a framework for developing the Action Plans in Pennsylvania's *NPS Management Program Plan-2008 Update*. The Action Plans cover each of the seven approved NPS categories, which are ***Agriculture, Construction and Urban Runoff, Hydromodification, Lakes, Land Disposal, Resource Extraction, and Silviculture***.

2.2 Accomplishments

This section summarizes FFY2008 accomplishments for each of the seven Action Plans in Pennsylvania's *NPS Management Program Plan-2008 Update*. The NPS Liaison Workgroup's small workgroups each reported their accomplishments for their specific Action Plan and those results are summarized on the following pages.

2.2.1 Agriculture

Goal 1

Objective:

Track agricultural BMP implementation and estimate reductions in sediment and nutrients. Track designated use attainment in watersheds where agriculture is the major source of impairment. Further develop or refine the existing Section 319 NPS GRTS database to collect this information on a watershed basis by 2012

Accomplishments:

- **The DEP Geospatial Data Center is developing a NPS BMP Repository and Input Tool to track NPS BMP implementation. The BMP Input Tool will allow entry of BMP data and related activities via direct entry, export files or XML web services.**
- **The Section 319 NPS Program GRTS database is being utilized to track implementation progress. Project locations and NPS load reduction estimates are associated with specific impaired water bodies.**
- **Load reduction models are utilized to estimate NPS load reductions. Project sponsors collect field data for use with NPS BMP models.**
- **The In-stream Comprehensive Evaluation (ICE) tool documents water quality data and helps DEP NPS Program staff direct restoration in agricultural impaired watersheds.**
- **The State Conservation Commission (SCC), with assistance from DEP, tracks farms with approved nutrient management plans (NMP). Farms are located by county and watershed with information retained by DEP.**
- **The SCC, with assistance from PDA and PACD, tracks SCC-funded BMPs that help to implement a NMP. The database tracks projects and BMPs with county and farmer's name. The SCC also tracks payments to farmers for NMP development.**
- **REAP Tax Credit program BMP implementation is tracked by the SCC. This database includes GIS data and units installed.**

Goal 2

Objective:

Increase the agricultural producers' involvement in watershed planning/implementation efforts by 2008.

Accomplishments:

- **Local watershed planning and BMP implementation efforts include farmers' input and involvement with conservation and nutrient management planning. Local watershed planning efforts, including development of S. 319-funded**

Watershed Implementation Plans, may also include local conservation district and farmer input.

Goal 3

Objective:

Increase accessibility of local, state, and regional water quality data to decision makers, watershed organizations and producers to target water quality restoration and protection efforts.

Accomplishments:

- **The DEP Geospatial Data Center is developing water quality and BMP tracking databases to be more readily accessible and complete with current data . The DEP website www.dep.state.pa.us includes links to several of these databases by selecting Quick Access (DEP Programs A-Z) and then the Keyword (*GIS*, *eMapPa*) from the DEP homepage.**

Objective:

Establish local water-quality monitoring sites to obtain baseline data and assess the effectiveness of agricultural practices or actions to obtain baseline data.

Accomplishments:

- **Several projects were completed through the ACRE program in 2008. Water quality monitoring to measure BMP effectiveness were components of several projects.**
- **A water quality monitoring component is included in Section 319-funded WIPs. The Mill Creek Restoration Plan water quality monitoring component is being implemented by a local watershed volunteer monitoring group. Extensive monitoring is being completed in the Mill Creek watershed, Bradford County, in conjunction with the WIP.**
- **Several regional watershed restoration projects, including the Schuylkill Action Network restoration program, have established water quality monitoring sites to collect water quality monitoring data and measure changes over time.**

Goal 4

Objective:

Assess the feasibility of nutrient reduction credit trading using the Conestoga River watershed pilot project by 2008.

Accomplishments:

- **The Conestoga River Pilot Project is complete. A PowerPoint describing the project may be viewed at the following web site http://www.mde.state.md.us/assets/document/nutrient%20trading%20pilot%20project_az.pdf. No trading projects have been approved to date within the Conestoga River watershed.**
- **Pennsylvania's nutrient trading program link on the DEP website, http://www.dep.state.pa.us/river/Nutrient%20Trading.htm#Registry, provides more information on the State program.**

Objective:

Increase the adoption of cost-effective best management practices to minimize ammonia emissions and protect/improve air quality on 1,000 farms by 2012.

Accomplishments:

- **Act 38 of 2005 *Agriculture, Communities and Rural Environment (ACRE)* required Odor Management Plan regulations to be developed. Odor Management Plan regulations were published as final in November 2008 and became effective in February 2009. All odor management plans must be certified.**
- **Research is being done by the Penn State University to develop appropriate BMPs to address ammonia and particulate emissions from livestock and poultry animal facilities.**

Objective:

Facilitate four projects demonstrating market-based opportunities to address agricultural water quality issues by 2008.

Accomplishments:

- **Financial and technical assistance has been provided by the DEP Energy Harvest grant program for many market-based projects that assist agriculture.**
- **Sixteen manure digesters operate in the state as of January 2009. A regional project is being developed in Blair County.**
- **The Penn State University 'webinar' series is addressing market-based approaches with agriculture; the Agriculture in Balance conference was held in June 2008; the NRCS, county conservation districts, DEP and Penn State University are partnering in a targeted watershed approach to addressing agricultural NPS problems.**

Objective:

Demonstrate the implementation of technologies and management systems (conservation tillage, composting, etc.) identified to be environmentally sound and economically feasible.

Accomplishments:

- **Twenty-one grants comprising over $800,000 in funding through the ACRE initiative were completed in September 2008. The grants explored ways to bring agricultural operations into baseline voluntary compliance with the Pennsylvania Clean Streams Law and Chapters 91 and 92. Projects include working within targeted watersheds, collecting sampling data, creating GIS databases, and working with plain sect farmers. A multi-county project created a toolbox for conservation districts to use to evaluate farms and suggest BMPs to bring these farms into compliance with existing environmental regulations.**
- **ACRE grants facilitated development of conservation and nutrient management plans totaling over 20,000 acres.**
- **The Resource Enhancement and Protection (REAP) Tax Credit Program has provided $10 million in state tax credits during 2007-2008. REAP has helped to implement fourteen innovative manure treatment projects on farms.**

Objective:

Assess the feasibility of new technology and BMPs to address the nutrient imbalance on agricultural lands.

Accomplishments:

- **The SCC has begun to implement the *Alternative Manure Utilization and Technologies Strategy* to assess various alternative manure processing technologies. The Penn State University provides technical support.**

Goal 5

Objective:

Increase farmer participation by 250 producers in the Pennsylvania Environmental Assessment and Conservation Certification of Excellence (PEACCE) program by 2012.

Accomplishments:

- **The Penn State University has continued to coordinate the On Farm Agricultural Environmental Review (OFAER) on-site assessments for new proposed farm operations. These assessments help ensure environmental obligations are being met and neighbor conflicts are minimized.**
- **The PEACCE program has severely slowed down implementation due to funding limitations. No funding has been provided to complete the required third-party farm assessments.**

Objective:

Maintain and increase nutrient management, soil conservation and agronomic management educational efforts to producers, program and technical support staff and agri-business by 2012.

Accomplishments:

- **Pennsylvania's Nutrient Management Program addresses all farms needing to implement nutrient management planning, including volunteer farms and farms classified as concentrated animal operations (CAOs) and concentrated animal feeding operations (CAFOs). The USDA-FSA and NRCS, county conservation districts, DEP, PDA and the SCC are emphasizing basic conservation practices for all farms through the 2008 Farm Bill conservation programs, Chesapeake Bay Program, Section 319 NPS Program, and PDA-SCC funded programs.**
- **The PDA offers continuing education for Nutrient Management Specialist and Manure Hauler & Broker certification programs. A series of courses is offered twice a year.**

Objective:

Track nutrient management plan implementation on Concentrated Animal Operations (CAOs) and Concentrated Animal Feeding Operations (CAFOs) where required by state and/or federal mandate.

Accomplishments:

- **Since CAFO program regulations became effective October 2005, all CAFOs identified by the county conservation districts (337 total) have been permitted or have submitted permit applications to the DEP.**

- **A county conservation district compliance strategy (1) identifies operations needing a nutrient management plan, (2) works with farmers on planning compliance, and (3) refers operations to the SCC for enforcement.**
- **Annual on-site inspections for CAOs and CAFOs are part of Pa's Nutrient Management Program.**
- **Over 1,040 CAOs and 1,700 farms that are not CAOs have approved nutrient management plans.**

Objective:
Fully implement Pennsylvania's Conservation Reserve Enhancement Program (CREP) in the Susquehanna and Ohio River basins and investigate the possible future expansion of CREP to include the Delaware River Basin.
Accomplishments:

- **The Susquehanna and Ohio River Basin CREPs are being implemented. The 2008 Farm Bill reauthorized CREP. CREP goals are 265K acres for all of Pennsylvania; 200K acres in the Susquehanna River basin and 65K acres in the Ohio River basin. Total acres under contract in the Ohio River Basin CREP = 25,235 (as of 09/30/2008). Number of contracts = 1,200. Approximately 40K acres are left to contract. Total acres under contract in the Susquehanna River Basin CREP = 173,855 (as of 09/30/2008). Number of contracts = 9,399. Approximately 25K acres are left to contract.**
- **Discussion continues on expanding CREP to include the Delaware River basin.**

Objective:
Develop and fully implement a Manure Hauler and Broker Certification Program by 2008.
Accomplishments:

- **Full implementation of the Commercial Manure Hauler and Broker Certification program was completed in January 2008. Over 800 commercial manure haulers, applicators and brokers have been certified by the PDA. Thirty-five continuing education programs were held in 2008.**

Objective:
Increase accessibility to agriculture research data and information on the water-air pollutant mechanisms through workshops, print media, and the internet by 2012.
Accomplishments:

- **The PSU College of Agricultural Sciences Agriculture and Environment Center (AEC) sponsored the *Agriculture and the Environment: Achieving Balance* workshop in June 2008. The PSU AEC website is www.aec.cas.psu.edu.**

Objective:
Facilitate conservation planning and implementation efforts and track conservation planning and implementation to help producers comply with USDA-NRCS and conservation district requirements by 2012.
Accomplishments:

- **The NRCS, Dauphin, Lebanon and Lancaster County Conservation Districts, and the Tri-County Conewago Creek Watershed Association are cooperating in a 2009 EQIP pilot effort to promote CORE conservation practices in this watershed. Additional pilot watersheds may be added as additional funding becomes available.**
- **Current Nutrient Management Program regulations require an updated conservation plan prior to receiving nutrient management plan approval. This requirement is expected to increase farm conservation plan development.**

Objective:
Develop and implement Mushroom Farm Environmental Management Plans (MFEMP) on all sites utilizing mushroom substrate (MS) and spent mushroom substrate (SMS) by 2012.
Accomplishments:

- **Chester County completed a Growing Greener-funded project that reviewed the status of existing MFEMPs, wrote new or revised existing MFEMPs and worked with the DEP on MFEMP compliance. Forty-five BMPs were installed on mushroom production and composting facilities.**

Objective:
Complete four projects that implement alternative-use technologies for spent mushroom substrate (SMS) by 2008.
Accomplishments:

- **Several County Conservation Districts and the American Mushroom Institute have cooperated in the implementation of many innovative SMS BMPs. Current research is being conducted on the soil enhancing qualities of SMS by faculty at the Penn State University Berks Campus.**

2.2.2 Construction and Urban Runoff

Goal 1

Objective:

Reduce storm water impairments that are caused by construction, dirt and gravel roads, and urban runoff by 2009.

Accomplishments:

- **In 2008, GreenTreks released Stormwater PA (http://www.stormwaterpa.org/) to assist decision-makers with a tool to use for flood protection and prevention. The program has proven successful and has secured funding for the next stage of development. It will be expanding across the Commonwealth in the future.**
- **The Department developed the Erosion and Sediment Control General Permit – 1 (ESCGP-1) permit for earth disturbance activities that disturb five or more acres over the life of the project associated with oil and gas exploration, production, processing, or treatment facilities or transmission facilities. Training was conducted in two sessions held in October and November 2008 for both conservation district staff and DEP Regional Office staff, and industry representatives. There were a total of 124 conservation district staff/DEP staff and 269 industry representatives that attended this training. This training covered Chapter 105 permits and requirements, ESCGP-1 permit requirements and procedures, How to review or complete the ESCGP-1 application, appropriate erosion and sediment control best management practices for oil and gas activities, and a review of problems found at oil and gas well sites and recommended solutions.**
- **DEP continued its work to revise and update the Chapter 102 regulations to incorporate post construction stormwater, buffer permitting options, and anti-degradation requirements.**
- **During 2008, DEP developed a Post Construction Stormwater Management Delegation Agreement which allows conservation districts the opportunity to conduct technical reviews of post construction stormwater management plans submitted as part of an NPDES Individual permit package. There were three conservation districts that signed this new delegation agreement in 2008.**
- **During 2008, 63 conservation districts administered the Dirt and Gravel Roads Pollution Prevention Program in Pennsylvania.**
- **DEP extended the expiration of the existing PAG-2 (NPDES General Permit) for stormwater discharges associated with construction activities to June 2009 to allow additional time to revise and reauthorize the General Permit.**

Goal 2

Objective:

Involve municipal officials, county planning officials, conservation district, local stakeholders, watershed groups, and other local advocate groups by 2009.

Accomplishments:

- **The Pennsylvania DEP continues to provide training to stakeholders on the Stormwater Best Management Practices (BMP) Manual.**

- **DEP outreach efforts to promote local model ordinance implementation for water quality protections are ongoing. There are roughly 1,000 municipal stormwater management ordinances in place in the State, with an additional 1,400 expected to be adopted in the next three years.**
- **PennDOT has recently developed the "Smart Transportation" initiative, which is all about building partnerships among various stakeholders and coordinating land use and transportation decisions.**

Objective:
Past and present planning efforts by Federal and state transportation agencies have concentrated primarily on addressing interstate road standards. Identify practical applications of good design criteria, construction and or maintenance standards that can be adopted by local governments by 2009.
Accomplishments:

- **PennDOT has not taken action as yet; the agency's Bureau of Municipal Services (Agility Center or Program and Services Division) and Bureau of Design (Design Services Division) may review this matter at some future date.**
- **DEP conducted nine training sessions statewide for PennDOT construction and maintenance staff on erosion and sediment controls for PennDOT road construction and maintenance activities.**
- **The Center for Dirt and Gravel Roads continued to provide training sessions directed toward municipalities for dirt and gravel road maintenance.**
- **The Center for Dirt and Gravel Roads retains a clearinghouse for information on dirt and gravel road maintenance and maintains project summaries on its website.**

Objective:
Update/revise the PennDOT guide to local roads handbook.
Accomplishments:

- **The most current version of the PennDOT publication, "Guidelines for Design of Local Roads and Streets" is December 2002.**

Goal 3
Objective:
Track and report on existing regulatory and non-regulatory program requirements and the potential effect they have on protecting and maintaining water quality on an annual basis.
Accomplishments:

- **Program activity reports on BMPs to reduce pollutants from urban development and DGRP maintenance activities will be revisited pending progress from the DEP, PennDOT, and the Pennsylvania State University's course on managing dirt and gravel roads.**
- **Revisions to program guidance documents and manuals are an ongoing; The DEP is revising the Chapter 102 regulations (Erosion and Sediment Pollution Control) and the more recent Stormwater BMP Manual.**
- **PennDOT is planning some demonstration projects that involve the use of compost materials (compost filter blankets, filter berms, and/or filter socks).**

There are now standards for these in the PennDOT Specifications Manual, Publication 408, as erosion and sedimentation control BMPs along roads and highways and at its stockpile and garage maintenance facilities. These projects will be completed in Districts 2-0, 8-0, and 9-0.

- **DEP staff continues to revise its Erosion and Sediment Pollution Control Program Manual to ensure all BMP standards and specifications are up to date.**
- **Conservation districts and DEP Regional offices issued over 1,853 NPDES General Permits, and 320 NPDES Individual Permits for stormwater discharges associated with construction activities. They also conducted 15,321 site inspections and responded to over 2,706 complaints.**
- **The NPDES Permit application form and permit application process is being revised to include addressing TMDL issues.**

Goal 4

Objective:

As resources allow, continue support of Villanova University Storm water Partnership and other educational institutions as a resource center to identify and research appropriate best management practices.

Accomplishments:

- **DEP Growing Greener grants and EPA Clean Water Act-Section 319 grants are assisting this effort.**
- **The PennDOT Smart Transportation initiative and the planned use of compost filter blankets, filter berms, and/or filter socks at selected road and highway projects and at stockpile and garage facilities are promoting use of environmentally-sensitive site design techniques.**
- **DEP continues to update the Stormwater BMP Manual.**
- **DEP and EPA employ aspects of their respective Growing Greener and Section 319 grant programs to assist in promoting pilot projects that focus on protecting surface water and groundwater quality. The upcoming PennDOT compost projects also quality as surface water and groundwater quality protection efforts, as they are meant for erosion and sedimentation control, in order to keep pollutants out of surface water and/or groundwater.**
- **Participation of DEP staff on the Villanova University Stormwater Partnership continued in 2008.**
- **Research on BMPs continues at the BMP Stormwater Research and Demonstration Park at Villanova University.**

Goal 5

Objective:

Continue to support long range planning, technical assistance, financial assistance, and compliance for storm water management systems and programs for local governments as resources allow.

Accomplishments:

- **DEP regularly participates in the development of training and the promotion of innovative measures for stormwater management (e.g. runoff plans for construction operations). The agency also interacts with its regional offices**

(Watershed Managers) and conservation districts to find ways to resolve water quality problems, per training sessions and program evaluations.

- **PennDOT engages in various audits of its facilities. These audits include Stockpile Quality Assurance (QA) visits performed by the Pennsylvania State University DGRP staff, ISO 14001 Environmental Management Systems (EMS) internal, external and surveillance audits. Water quality matters (e.g. runoff control, discharges at facilities) do come up occasionally during these stockpile QA visits and audits.**
- **PennDOT maintains a Strategic Recycling Program (SRP) which promotes the use of recyclable materials in road and highway construction or maintenance projects. The relevance here is that by using recyclable materials (e.g. foundry sand, crushed glass, reclaimed asphalt pavement (RAP) in such projects, the materials are kept out of the environment and out of the NPS universe. Also, the use of compost for erosion and sedimentation control at PennDOT projects and facilities will assist the agency in doing its part to keep pollutants out of stormwater runoff, and hence, away from surface water and groundwater. The web link for the PennDOT SRP is as follows:**
- **DEP staff completed the development of a draft Pennsylvania Model Stormwater Management Ordinance to serve as a model ordinance or template for municipalities developing municipal stormwater management ordinances. The Model Ordinance has been sent to DEP executive staff for review prior to final publication.**
- **58 counties have been identified as either in progress on the development of a countywide stormwater plan or negotiating a contract to submit a request for stormwater planning.**
- **DEP has developed a draft of the PAG-13 General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (Ms4s). This draft has been sent to DEP executive staff for review prior to publication for public comments.**

2.2.3 Hydromodification

Goal 1
Objective:
Modify or remove dams and implement Natural Stream Channel Design (NSCD) measures when applicable.
Accomplishments:

- **Approximately 43.9 miles of streams were opened for the passage of fish and other aquatic organisms, as reported by the Pennsylvania Fish and Boat Commission.**
- **Information relating to removal of dams in Pennsylvania is maintained at the American Rivers webpage http://www.americanrivers.org/site/PageServer?pagename=AR7_Region_MidAtlantic_depth**

Objective:
Promote remediation on waterways that are impacted by sediment.
Accomplishments:

- **Sediment impacts are addressed on impaired water bodies through stream bank restoration, riparian buffer planting, and NSCD projects to improve stream channel stability and function. Section 319 funds are targeted to impaired water bodies where TMDLs and Watershed Implementation Plans have been completed.**
- **Growing Greener II, through the County Environmental Initiative allocations, has made it possible for many creative approaches. It is also utilizing NRCS, County and Conservation District resources to address those sites. This information should be promoted to municipal officials in the future.**

Goal 2
Objective:
Continue to update the Guidelines for Natural Stream Channel Design for Pennsylvania Waterways.
Accomplishments:

- T**he KST completed the Natural Stream Channel Design Guidelines in March 2007. This document can found on their webpage at www.keystonestreamteam.org. The KST is currently forming a steering committee to update the Natural Stream Channel Guidelines.**

Goal 3
Objective:
Establish monitoring protocol for Natural Stream Channel Design, with the goal of measuring environmental results.
Accomplishments:

- **The Citizens Volunteer Monitoring Program (CVMP) has evaluated and selected several monitoring protocols appropriate for use with volunteers and is**

field-testing their use on NSCD projects located on the South Branch of Codorus Creek in York County.

- **Representatives of Aquatic Resources Restoration Company have continued post NSCD Project construction monitoring workshops on the East Branch Codorus Creek and South Branch Codorus Creek.**

Goal 4

Objective:

Promote the Keystone Stream Team (KST) as the mechanism to facilitate the transfer of information on natural stream channel design (NSCD).

Accomplishments:

- **During 2006, the KST researched and documented a range of costs for assessment, design and construction of NSCD projects and posted it on its web site at www.keystonestreamteam.org. This information is still available, but the KST is currently forming a steering committee that intends to update this information.**
- **Currently there are two databases accessible through the KST web site. One contains engineering design data and reference reach data for designing NSCD projects around the State. The other contains information on NSCD projects that have been constructed in the North Central and South Central regions of Pennsylvania. The creation of these databases was supported by a Section 319 grant.**

Objective:

Promote an understanding of BMPs available for channel restoration and where they are appropriate.

Accomplishments:

- **The KST continues to be the focal point for NSCD information, education, and outreach. A wealth of information is available and maintained on www.keystonestreamteam.org. Specific information regarding BMPs relating to NSCD can be found in the Natural Stream Channel Design Guidelines, Chapters 6, "Creating the Final Design". The KST is currently forming a steering committee to update the Natural Stream Channel Guidelines.**

Objective:

As resources allow, continue definition of regional characteristics related to sediment transport, regional curves, reference reaches, etc.

Accomplishments:

- **Current reference reach and sediment transport data for new and existing projects is included in the NSCD repository www.keystonestreamteam.org.**

Goal 5

Objective:

Promote a general understanding of channel maintenance and its impact on channel function.

Accomplishments:

- **The KST completed the Natural Stream Channel Design Guidelines in March 2007. This document can found on their webpage at www.keystonestreamteam.org. Topics relating to channel maintenance and its impact on channel function are included in Chapter 2, "Reading the River" and Chapter 4, "Data Collection and Analysis". The KST is currently forming a steering committee to update the Natural Stream Channel Guidelines.**

2.2.4 Lakes

Section 314 of the Clean Water Act focuses on lakes. Clean Lakes initiatives have since 1995 been funded through Section 319. Public and non-public lake initiatives have also been funded through Pennsylvania's Growing Greener Program. Other funding sources used for assessment and restoration of lakes include EPA's special 106 appropriation funds, the Natural Resources Conservation Service (NRCS) PL566 program, and other programs such as the Chesapeake Bay Program, and PENNVEST (Clean Water State Revolving Funds). Pennsylvania has approximately 1500 lakes and reservoirs that total about 161,000 acres, with 370 lakes open to the public, 150 within 72 different State Parks. Boating, fishing, swimming and other recreational activities are typically integral to a lake community. Pennsylvania's lake management regulation is codified in the Department of Environmental Protection's Rules and Regulations, Section 95.6-Discharges to Lakes, Ponds and Impoundments, which sets forth treatment requirements for point source discharges necessary to control eutrophication. As aquatic life, recreational and potable water resources, and fish consumption sources, lakes need to be protected and maintained for the resources be fully usable in the future. The challenge in lake management is to involve the stakeholders in the watershed to prevent nonpoint source pollution and restore the riparian habitat, as well as to identify and permit in-lake practices that can mitigate lake problems while the watershed is restored.

Goal 1

Objective:

By 2012, develop a comprehensive Pennsylvania Lake Classification and Lake Criteria System, and remove from the impaired list lakes that have good water quality and meet designated uses but violate stream-based criteria of dissolved oxygen and temperature.

Accomplishments:

- **The reclassification of individual lakes is a lengthy lake-by-lake process, requiring in-depth review, input from outside groups and the Regions, formal presentation of pertinent lake data and eventual approval by the Environmental Quality Board. This task is an ongoing effort of DEP's Bureau of Watershed Management (Watershed Protection Division) and Bureau of Water Standards and Facility Regulation (Water Quality Standards Division). The Division of Water Quality Standards has developed a template for the reclassification process, and the Division of Watershed Protection maintains a list of lakes needing reclassification. Three lakes (Blue Marsh Lake, Lake Luxembourg, and Walker Lake) have been reclassified since 2005.**
- **Removing lakes with good water quality from Category 5 on the Integrated List now requires a new assessment and review of the data. A few are still listed based on older water quality standards that were difficult for lakes to meet. The updated Chapter 93 water quality standards (http://www.pacode.com/secure/data/025/chapter93/chap93toc.html) now recognize the natural process of stratification in lakes, ponds and impoundments and apply dissolved oxygen (DO) criteria only in the epilimnion of lakes. In non-stratified lakes, ponds and impoundments, the criteria apply throughout. Water temperature criteria apply only to heated discharges. These changes resulted in**

the removal of 34,060 lake acres from impaired status to meeting aquatic uses. Total impaired lake acres were reduced from 45,197 in the 2004 listing to 11,137 in the 2006 listing.

- **Besides the Chapter 93 water quality standards, Pennsylvania now has detailed narrative standards with which to assess lakes for all uses. These documents will be out for public review in early 2009. These standards will be used for listing lakes in the 2010 Integrated Report.**

Goal 2

Objective:

To continue tracking improvements in lake watershed implementation planning projects and to implement BMPs to meet the TMDLs by 2012.

Accomplishments:

- **Three lake projects, with the cooperation of individual conservation districts, local stakeholders and lake management consultants, have completed Watershed Implementation Plans (WIPs). Each was originally a part of the Clean Lakes Program, with completed Phase I Feasibility Studies and TMDLs. Each also has done significant BMP implementation in the watershed and can already claim phosphorus load reductions toward meeting the TMDL. Each lake is also being tracked for in-lake water quality improvements. The three lakes are Harveys Lake in Luzerne County, Stephen Foster Lake in Bradford County, and Lake Luxembourg in Bucks County.**

Goal 3

Objective:

By 2006, develop standardized monitoring protocols that adequately assess the status of lakes' aquatic life use.

Accomplishments:

- **DEP's Lake Monitoring Protocols are refined and expanded in every two-year cycle for the Integrated Report. The basic protocols have been established since 1997. Presently, monitoring in lakes includes data for most of EPA's recommended "Elements of a State Water Monitoring and Assessment Program" (EPA 841-B-03-003, March 2003, p. 52) for each of the four designated uses. DEP's lake assessment guidelines are being revised for public input in early 2009. Pennsylvania participated in EPA's National Lake Survey in 2007, and some of the survey and assessment methods used in that program may be adapted for future DEP use. Data summaries on the Survey are just now becoming available. See EPA's website for protocols and updates: http://www.epa.gov/owow/lakes/lakessurvey/**
- **The state's Citizen Volunteer Monitoring Program, which uses DEP's Lake Monitoring Protocols, provides additional information and data on the State's lake resources by involving citizens and others in the monitoring of their lakes. In 2008, seven lakes were enrolled in this program. Partnerships forged to accomplish extra lake assessments include those with the Dept. of Conservation of Natural Resources, the County Conservation Districts, the PA Lake**

Management Society, the Consortium for Scientific Assistance to Watersheds (C-SAW), and private citizens.

- **The Department's switch to the National Hydrographic Data Layer (NHD) and new electronic data storage and retrieval systems based on GIS (SLIMS, ICE, eFacts, eMap, and WAVE) in 2006 allows for efficient data sharing, both internally and with the public. The lake portion underwent significant updating in 2008 and should be more useful for Integrated Reporting and for sharing lake information with the public.**

Objective: Continue monitoring and tracking efforts to determine if projects implemented to address NPS impairments are making water quality improvements and addressing TMDLs.

Accomplishments:

- **Most TMDL lakes are being tracked using protocols designed to detect water quality improvements as soon as they are achieved:**
  1. Stephen Foster Lake (Bradford County) has been intensely monitored since BMP implementation began in 2004, utilizing 319 funding. Monthly in-lake and tributary water quality grab samples and flow data are collected from April through October. The loading and comparative data analyses are being complied through consultant services and also within DEP. To date, slight improvements of in-lake total phosphorus have been noted. 2. Lake Luxembourg (Bucks County) has been sampled almost annually since the TMDL was completed in 1999. BMPs in that rapidly developing watershed now focus on wetland enhancements and stormwater retrofits rather than agriculture. 3. Harveys Lake (Luzerne County) has been monitored for stormwater mitigation, as that is the main focus of BMP implementation. To date, the Lake's total phosphorus loadings have been reduced by more than 30%. The project is awaiting final WIP approval before implementing another 26 phosphorus-reducing stormwater BMPs. Lake Wallenpaupack continues to be monitored monthly by the local watershed management district, but no entity is following the data to discern improvements for credit towards the TMDL, although significant BMP implementation has occurred in the watershed. Other TMDL lakes sampled on an intermittent basis include Pinchot Lake (York County), Lake Nockamixon (Bucks County), Conneaut Lake (Crawford County), and Lake Jean (Luzerne County). These lakes do not have restoration grants associated with them at this time.

Goal 4

Objective:

By 2007, develop a strategy to control, prevent, and mitigate aquatic invasive species that affect aquatic life and recreational uses of Pennsylvania's water bodies and riparian areas.

Accomplishments:

- **This goal has largely been accomplished by the development and adoption of a formal Aquatic Species Management Plan, the efforts of Pennsylvania's Invasive Species Council (PISC) and the Aquatic Invasive Species Workgroup. DEP has a seat as one of six State agencies represented on the Council in addition to 10**

public members. Meetings are held quarterly. The Council has identified priorities and is seeking funds to implement their objectives. In 2008, a mock Action Alert training was held in Erie, and the PISC has an active list serve and website that continually sends out updates, news, and announcements of training opportunities in Pennsylvania, as well as surrounding states. The PISC has also completed a management plan for terrestrial invasive species, which has gone to the Governor for his approval.

- **The Pennsylvania Fish and Boat Commission has played an active role in the PISC, has Aquatic Nuisance Species information on their web site and has published educational materials on aquatic invasives. The most recent web posting is on procedures for cleaning boats and gear when moving between water bodies at http://www.fish.state.pa.us/cleanyourgear.htm. Complete procedures for washing equipment are also located at EPA's National Lake Survey website http://www.epa.gov/owow/lakes/lakessurvey in the *Final Survey of the Nation's Lakes Field Operations Manual, 2007*.**

Objective:
Support conferences and outreach events for dissemination of current information on innovative technologies for lake management.
Accomplishments:

- **The PALMS annual conference will be delayed until February 2009, due to too many conflicts in October. However, eight regional workshops were held in 2008, with 311 attendees. Due to demand, more Regional workshops are being planned for 2009.**

Objective:
By 2007, expand the availability of technical and educational resources on lake management and restoration issues through a public clearinghouse, to provide outreach to public and private lake managers, owners, and stakeholders.
Accomplishments:

- **PALMS and the Lake Wallenpaupack Watershed Management District websites offer educational materials on lake protection and management, BMP manuals for free downloading and contacts and links for further information.**
- **In 2008, the Consortium for Scientific Assistance to Watersheds (C-SAW), and partnerships between the Pennsylvania Lake Management Society (PALMS) and Penn Sate Extension Services assisted several lake associations and one lake management district with watershed and lake management issues, and facilitated 8 Lake and Pond Workshops. C-SAW recently updated its brochure and website at http://pa.water.usgs.gov/csaw/.**

Goal 5
Objective:
By 2007, disseminate new information and outreach materials on NPS issues for municipalities, watershed groups and local stakeholders.
Accomplishments:

- **DEP plans to provide speakers and literature resources for the annual conference of the Pennsylvania Lake Management Society (PALMS), the premier lake stakeholder workshop in the State, in February 2009.**
- **The PALMS website, www.palakes.org, provides information on lake and watershed BMPs, water quality parameters, and other outreach material.**
- **DEP revised and disseminated its new Stormwater BMP manual in 2007 and provided numerous regional training sessions.**

2.2.5 Land Disposal

Goal 4

Objective:

Evaluate de-nitrification and other alternate wastewater treatment technologies as they are submitted, using DEP Experimental On-lot Technology Verification Protocols.

Accomplishments:

- **NSF has issued a Final Evaluation Report for the Oranco Systems AdvanTex AX-20N denitrification unit, which has been field tested at 11 sites throughout Pennsylvania since 2005. DEP intends to review the report and make a final determination by summer 2009 on whether or not it will be approved for use in the State.**

Goal 5

Objective:

Provide pre-certification training to individuals who would like to become certified Sewage Enforcement Officers (SEOs).

Accomplishments:

- **During 2008, 68 candidates attended the SEO Pre-certification Academy training and 61 candidates became certified SEOs.**

Objective:

Provide continuing education training to 1,527 certified SEOs, and promote increased participation by other municipal officials.

Accomplishments:

- **During 2008, 574 SEOs successfully completed classroom courses, 94 post-tests and 547 Web-based courses were successfully completed.**
- **Six Web-based courses are currently being offered, which deal with alternative treatment technologies.**
- **One new classroom course dealing with on-lot system component selection and one Web-based course on alternative treatment technologies were developed in 2007. However, both courses are still awaiting the results of impacting DEP policy development before being finalized and delivered.**
- **One new classroom course was developed in 2008-#214-Troubleshooting On lot Systems - This one-day course will focus on a systematic approach to assist SEOs with the investigation of regulatory malfunctions. The course will teach SEOs how to conduct a thorough investigation to determine the cause of a malfunction. Participants will also receive information on tools and technology that may assist with the troubleshooting process, field documents to assist the SEO in the malfunction investigation, and resources that may be used to educate homeowners on the prevention of malfunctions.**
- **A new format for the Pre-certification Academy is currently under development. The Orientation Course was beta tested by four SEO pre-certification candidates in 2008. This course will become part of the current academy in 2009. Course A-Site Testing and Evaluation is now in the development process.**

Objective:
Encourage an additional 100 municipalities to develop and update Sewage Management Programs (SMPs) in accordance with Act 537 by 2010. (An estimated 85 municipalities had programs planned or operational in 2003.) Explore regional options for the treatment and disposal of pumped septic wastes.
Accomplishments:

- **At the end of 2008, there were 204 SMPs on record, serving at least 262 Pennsylvania municipalities. Without full verification, it cannot be concluded that every SMP is valid, or implemented, or that there are not other SMPs in the State as yet undiscovered.**
- **Assistance continues to be provided to all municipalities seeking support in developing new SMPs.**
- **Efforts are ongoing to improve availability and access to SMP education and resource materials for municipalities in need.**
- **Regarding cooperative inter-municipal approaches to the management of on-lot sewage treatment systems:**
    - **The Centre Region Council of Governments, Centre County is administering a multi-municipal SMP for five of its member municipalities. Other municipalities are also beginning to show interest in SMPs being administered through a Council of Governments structure.**

Objective:
Increase use of the PENNVEST Individual On-lot Sewage Disposal Funding Program for repair and replacement of malfunctioning systems by 2007. (An average of 32 projects per year were financed between 1994 and 2004.)
Accomplishments:

- **In 2008, PENNVEST closed on 18 new loans for repair and replacement of on-lot treatment systems, totaling $286,769. Since the program's inception in 1994, the agency has closed on 406 loans totaling $4,314,508.**
- **PENNVEST promotes its Individual On-lot Sewage Disposal Funding Program through DEP, the Pennsylvania Housing Finance Authority, local Sewage Enforcement Officers, conference exhibits, meetings with legislators, county planners, etc.**
- **DEP's Act 537 Management Program began including a promotional paragraph for PENNVEST on-lot repair and replacement loans in its periodic SEO newsletter, beginning with the October 2006 issue.**

Objective:
Enhance public awareness of household hazardous waste (HHW), and increase the number of participants in HHW collections by 2007. (33,934 participants were reported in 2003.)
Accomplishments:

- **Preliminary data for 2008 indicate that 124 HHW collections were held in 62 communities, involving 85,945 participants and collecting 7,460,000 pounds of HHW, electronics and tires.**
- **DEP staff speaking at regional roundtables and working one-on-one with individual communities accomplishes expansion of HHW collections and inter-municipal and public/private partnerships.**
- **At the end of 2008, there were 856 oil recycling collection stations registered in Pennsylvania. These are promoted on the DEP web site and through communications with citizens and regional and county recycling coordinators.**

Objective:
Increase the number of regional (inter-municipal, public/private partnership) HHW collections by 2009. (Two were reported in 2003.)
Accomplishments:

- **There were eight inter-municipal and public/private collection partnerships in Pennsylvania at the end of 2008: the SW PA HHW Task Force (HHW), the SE PA Regional HHW Program (HHW and electronics), the Loyalhanna Watershed Association (electronics), the Northern Tier Solid Waste Authority (HHW, electronics and tires), PA CleanWays of Butler and Lawrence Counties (electronics and tires), Bedford/Fulton/Huntingdon Counties (HHW and electronics), Elk/Cameron Counties (electronics) and Butler/Crawford/Venango Counties (electronics).**

Objective:
Expand on-farm assessments and collections of the Farm-A-Syst and Chemsweep programs, emphasizing performance-based approaches to environmental management. By 2010, increase the total amount of waste pesticides collected by the Chemsweep program to 2.0 million pounds.
Accomplishments:

- **No additional evaluation worksheets were revised or published for the Farm-A-Syst Program during 2008.**
- **The Farm-A-Syst materials continue to be used extensively in Penn State University Cooperative Extension's nutrient management education program**.
- **The Chemsweep Program collected 103,048 pounds of pesticides during 2008, well above the 1999-2007 average of 97,403 pounds per year. Of this total, 29,514 pounds were collected at nine Chemsweep/Household Hazardous Waste partnership events, averaging 3,279 pounds per event. The annual average amount of homeowner pesticides collected per partnership event was 3,006 pounds over the last six years. Total pesticides collected by the Chemsweep Program since its inception in 1993 now stands at 1,814,077 pounds.**
- **Chemsweep sends out pesticide inventory packets to licensed dealers and applicators in selected counties. This list includes professional applicators, golf courses, landscape services, schools and pest exterminators. Also, Chemsweep is promoted to all applicators at update training and recertification meetings throughout the year.**

Objective:
Reclaim additional acres of disturbed or degraded lands using bio-solids or other recycled by-products by 2008. (An average of 200 acres per year was reclaimed from 2001 to 2003.)
Accomplishments:

- **49,396 tons of biosolids were used as a soil supplement on 101.8 acres of active mine lands and 19,822 tons on 133.4 acres of abandoned mine lands. In addition, approximately 660 cubic yards of spent mushroom compost was used in passive abandoned mine drainage treatment systems.**
- **DEP's Biosolids Program continued to provide formal training for biosolids generators and land appliers in recommended procedures for producing and applying biosolids during 2008.**
- **The program continued to register haulers of residential septage in an effort to eliminate illegal disposal practices.**
- **The program also reviewed and processed permit applications for the beneficial use of biosolids and residential septage, conducted inspections of biosolids processing facilities and application sites and took appropriate enforcement action when violations of Department regulations were discovered.**

Objective:
Utilize existing programs to clean up 50 illegal dumps threatening lakes, streams, groundwater or wetlands by 2012.
Accomplishments:

- **Pennsylvania Clean Ways cleaned up 97 dump sites during 2008, collecting 615 tons of assorted refuse and 12,537 tires. The Pennsylvania Environmental Council (PEC) assumed responsibility for Project COALS in 2008 and cleaned up 34 dump sites, collecting 223 tons of trash and 8,473 tires. Since 1990, these programs and the Susquehanna River Basin Commission have restored more than 973 sites and collected upwards of 34,062 tons of refuse and more than 369,130 tires.**
- **Pennsylvania CleanWays also provides educational resources to help communities raise awareness of the hazards associated with illegal dumping and the availability of affordable disposal and recycling alternatives. With DEP financial support, the organization maintains an Illegal Dump Survey Program, which has identified 2,600 dump sites containing approximately 11,000 tons of trash in 24 counties since its inception in 2005. The goal of this program is to survey the entire State for illegal dump sites by 2012.**
- **During 2008, DEP invested $500,000 in a new Illegal Dump Cleanup Grant Program, offering competitive grants of up to $25,000 to communities and incorporated non-profit groups for public education, cleanup and restoration of dump sites, continuing site surveillance and enforcement of littering and illegal dumping ordinances. Applicants must be prepared to match at least 50% of the grant amount and cannot, in any way, be responsible for the creation or use of an illegal dump located within the State.**

2.2.6 Resource Extraction

Goal 1

Objective:

Evaluate and categorize or prioritize watersheds with abandoned mine lands for restoration activities.

Accomplishments:

- **One factor in placing a watershed higher on the priority list in the state for Growing Greener funding is a completed restoration or implementation plan. This plan outlines the priorities in restoring a specific watershed. Another factor that would put a watershed higher on priority list for this funding is the presence of an approved TMDL.**
- **District Mining Offices also have a set of priority watersheds that they have chosen. Some factors they consider when choosing their priorities are the likelihood the watershed can be restored and the funding the state have already invested in the project.**

Objective:

If resources allow, restore 100 stream miles to designated uses by improving aquatic habitats to support fish and associated aquatic life in streams impaired by Abandoned Mine Drainage (AMD). (By the end of 2009)

Accomplishments:

These projects go towards restoring 100 miles to designated uses:

- **29 Growing Greener projects were awarded from 10/07 to 9/08**
- **25 Growing Greener Projects were completed from 10/07 to 9/08**
- **Projects that were funded by the Section 319 Program began 10/07 to 9/08**
- **12 Projects that were funded by Section 319 program were finished 10/07 to 9/08**
- **2 other funded AMD projects that finished 10/07 to 9/08**
- **32 projects were completed by BAMR, 24 of which was surface reclamation and the rest were AMD treatment**

Watersheds once impaired by AMD that are now meeting designated uses:

- **Step Run, Clarion County, 5.6 miles**
- **Semiconon Run, Butler County, 8.4 miles**

Objective:

If resources allow, reclaim 2,500 acres of Abandoned Mine Lands (AML). (By the end of 2009)

Accomplishments:

- **BAMR reclaimed 922.8 acres**
- **The District Mining Offices facilitated the reclamation of 635.5 AML acres during the reporting period through government-financed construction contracts, remining permits, and bond forfeiture reclamation projects.**

Objective:

Plug 1,100 of the 6,600 known abandoned oil and gas wells to improve water quality, eliminate safety hazards, and eliminate pollution resulting from uncontrolled discharges

into ground and surface water, contingent on having adequate resources. (By the end of 2009)

Accomplishments:

- **DEP's Bureau of Oil and Gas plugged 200 abandoned wells**

Objective:

Restore losing streams to the surface to reduce surface water infiltration into underground mines and restore aquatic habitat.

Accomplishments:

- **Lydick GFCC Project in Westmoreland County (Conemaugh River Watershed). An Unnamed Tributary to Stony Run enters a sink hole that connects to the Pittsburgh Coal deep mine workings within the Latrobe Syncline mine pool. The project will restore the stream flow to the surface.**

Goal 2

Objective:

Develop 20 integrated watershed management plans that incorporate AMD/AML Assessments by 2009.

Accomplishments:

- **There are 17 completed WIPs that incorporate AMD assessments**
- **There was 1 new restoration plan that was completed 10/01/07 to 9/30/08**
- **There were 7 TMDLs that were approved in 2008**

Objective:

Develop operation, maintenance and replacement (OM&R) plans and funding sources for AMD remediation projects as resources allow. (By end 2009)

Accomplishments:

- **Any construction projects for AMD remediation are required to have an OM&R plan as one of the deliverables. The plan needs to address basic maintenance issues along with a replacement schedule for the future, and who the responsible party is for each section of the plan. Also, possible funding sources to implement the plan must be identified.**
- **The Bureaus of Mining and Reclamation and District Mining Operations have secured a stable source of funding to provide annual OM&R activities at 100 abandoned discharges bond forfeiture sites that were bonded under the old Alternate Bonding System.**
- **Under the new Full Cost Bonding system, the District Mining Offices have required mine operators to post a separate bond or trust which will insure sufficient funds to continue annual operational, maintenance and replacement activities on AMD treatment facilities in perpetuity even if the operator should abandoned the facility. To date, the DMOs have collected over $160 million in bond/ trust money.**
- **The Schuylkill Headwaters Association was awarded a $50,000 grant from the William Penn Foundation to develop an OM&R plan and funding mechanism for projects in the Schuylkill River Watershed.**

- **WPCAMR continues to administer the Growing Greener funded "Quick Response" program to provide emergency funding for treatment system repair. Four projects were funded with this from 10/07 – 9/08.**

Goal 3

Objective:

Utilize a single, statewide database (clearinghouse) to coordinate the sharing of monitoring and tracking data by 2009.

Accomplishments:

- **The Office of Surface Mining (OSM), with significant participation by DEP, has been maintaining a GIS database of all passive AMD treatment systems in Pennsylvania. This data base is updated yearly and provided to numerous users throughout DEP and other Federal and State agencies, other governmental agencies, private organizations and individuals. Approximately 257 individual passive treatment project sites have been entered into the Pennsylvania GIS data base. These projects have a total capital investment of over 70 million dollars. Information on projects is collected from a wide range of sources including consultants, State and Federal agencies, conservation districts, and non-profit watershed groups.**
- **EPCAMR continues to update and distributed the RAMLIS GIS Tool CDs currently at Version 8. The Reclaimed Abandoned Mine Lands Inventory GIS Tool is a conglomeration of statewide and regional GIS Data related to mining, abandoned mines, land use and water quality which aides in gathering statistics and producing maps of mine scarred lands throughout Pennsylvania. Specifically this database shows AML Priority 1, 2 and 3 statewide with information on DEP BAMR's plans for reclamation. The project was made possible with funding from the Foundation for Pennsylvania Watersheds, DEP's 319 Program and the use of OSM's ArcGIS License. Updates are produced yearly with updated datasets and future development may lead to an online ARC IMS System. Please see the ArcNews Article at http://www.esri.com/news/arcwatch/1008/mine-reclamation.html**
- **WPCAMR continues to administer the "FACTS" program (Funding for AMD Chemistry of Treatment Systems) which provides chemical analyses for system monitoring. As part of the "FACTS" program, WPCAMR is working with Stream Restoration, Inc. and DEP to develop a public, online repository of system data called "Datashed". The program is to help groups and government agencies with the operation and maintenance of passive treatment systems.**

Goal 4

Objective:

Encourage development and implementation of new technologies and technology transfer with a goal of more cost effective AMD remediation by 2009.

Accomplishments:

- **Cambria DMO assist the Little Conemaugh Watershed Assoc. develop technical information for a permit for limestone sand dosing.**

- **WPCAMR's educational website (www.amrclearinghouse.org), its e-mail newsletter "Abandoned Mine Posts" with accompanying blog archive (www.amp.wpcamr.org), and its new initiative "WPCAMR Video Diaries" continue to be effective and cost efficient ways to promote understanding and technology transfer to a wide audience. Also, through its e-mail newsletter, WPCAMR continues to encourage the exploration of alternate uses for mine water (e.g. geothermal uses).**
- **Valley Creek, Chester County (Atwater Mine Reclamation Project) – Brownfield redevelopment to incorporate quarry reclamation into a corporate center. The project included a 50 acre lake.**
- **Energy Harvest Grant for the "Beneficial Use of Mine Water for Heating and Cooling" Project in Allegheny County. This geothermal project will utilize a deep mine discharge to heat and cool a portion of an historical church in the Hill District section of Pittsburgh.**
- **Duryea Borough (Lackawanna County) – received approximately ~ $800,000 from the Pennsylvania Department of Community and Economic Development through the gaming funds to demonstrate a new treatment technology for the Old Forge Borehole and purchase of land to construct the final facility. The new treatment technology does not use chemicals; rather it uses physical properties of increased surface area to settle out and collect iron solids for re use. Other green technologies such as micro hydro power generators, carbon sequestration and geothermal heating will be incorporated into the final design.**
- **Schuylkill Headwaters Association reports that the Mary D AMD Treatment Wetlands was completed in the fall of 2007 and dedicated along with a new Mary D Fire Company Sports Complex by local, state and federal legislators in May of 2008. The new sports complex replaced a small sports field that was destroyed to construct the AMD Treatment System.**
- **In 2008, WPCAMR was awarded a Growing Greener grant as the sponsor of a project headed by Dr. Bob Hedin to recover and use iron deposits from treatment systems.**

Objective:
Improve and encourage education and outreach programs for information dissemination to the general public by 2006.
Accomplishments:

- **Cambria DMO Present a power point presentation at two conferences (WPCAMR, PACD) on the Standard Practices of limestone sand dosing.**
- **EPCAMR and WPCAMR both have developed and continue to maintain very informative and up-to-date websites to disseminate information to the World Wide Web. EPCAMR's http://www.orangewaternetwork.org and WPCAMR's www.amrclearinghouse.org are excellent conduits for distributing information and news in a cost effective, paperless way. As a part of these websites, AMD/AML related news is distributed through EPCAMR's "EC Express" and WPCAMR's "Abandoned Mine Posts" to readers statewide and beyond.**
- **The 2008 Pennsylvania Abandoned Mine Reclamation and Coal History Conference was hosted by the AMR Conference Committee August 12 - 14, 2008**

at the Ramada Inn and Conference Center, State College, PA. This was the 10th anniversary of the statewide conference. There were over 200 attendees and 45 presentations in 3 tracks. The conference lasted 3 days and included a pre-conference bus tour of AMD impacted watersheds and treatment systems in the State College area. The first day and a half was dedicated to AMR and the rest was dedicated to coal mining heritage and history. Visit www.treatminewater.com for more information.

- **The 4th Annual West Branch Symposium was held July 18th & 19th, 2008 at the Nittany Lion Inn, State College, PA. The purpose of the West Branch Susquehanna Restoration Symposium is to promote the West Branch Susquehanna Restoration Initiative, which is aimed at the cleanup of abandoned mine drainage throughout the West Branch Susquehanna watershed. This event serves as a forum for the exchange of ideas regarding abandoned mine drainage abatement in the region and provides an excellent opportunity for networking among volunteers, technical experts, students, and others interested in restoring land and water impacted by abandoned mine drainage. A field tour to the Bennett Branch AMD Projects was also available to attendees.**
- **The Clean our Anthracite Lands and Streams (COALS) program, now managed by the PA DEP Bureau of Waste Management, continues to thrive in Northumberland, Schuylkill, Lackawanna and Luzerne counties. EPCAMR received a beautification grant to develop the Avondale Hill Mine Disaster site into a memorial park. Work has begun to clear the site for debris and overgrown plants. The project was partially managed with 2 high school students as a senior project. Kiosks and benches made of recycled plastic were purchased through the grant.**
- **WPCAMR participated in the organization of the 2008 7th Ohio River Watershed Celebration in September. Over 500 adults and 277 students learned about rivers and water quality. Two boats were chartered this year; one for school age children and one for adults. There were 23 organizations present to provide educational activities for the students.**
- **WPCAMR continues to make its brochures, "Environmental Benefits of Burning Waste Coal in CFB Power Plants" " and "Remining for Abandoned Mine Reclamation" available at public events or meetings where WPCAMR has a display.**
- **WPCAMR has begun to create and host the CRRDL website: www.crrdl.wpcamr.org .**
- **WPCAMR promotes its website on all materials/videos/emails released for public consumption.**
- **WPCAMR continues to share information about conferences and/or workgroups via email and its two websites: www.wpcamr.org and www.amrclearinghouse.org in addition to hosting Pennsylvania's Annual AMD conference website: www.treatminewater.com**

Goal 5

Objective:

Encourage more use of sound science and innovative technology in beneficial uses of bio-solids, alkaline coal ash, dredge, and other by-product materials in reclamation by 2009.

Accomplishments:

- **The Pottsville Office issued 2 new permits for beneficial use of coal ash in land reclamation bringing the total number of ash permit actively disposing of coal ash to 27.**
- **Reading Anthracite Company, Schuylkill County – Utilizing biosolids for land reclamation in buried trenches to facilitate a Hybrid Poplar tree farm. Various rates of application were approved.**
- **Meadowbrook Coal Company, Dauphin County – Approval to utilize biosolids in reclamation on Game Commission property on a coal refuse reprocessing operation.**
- **EPCAMR has been working with the DEP's Moshannon Office on a very cost effective way of backfilling at the Bernice Landfill in Sullivan County. The land is being topped with 60 – 80 tons per acre of biosolids from New York City Certified Plants on a 500 acre AML Site. The biosolids are treated with lime to pH of 7 then again in onsite processing which raises pH to 11. Cherry Twp. gets a $1 per ton fee ($6K in checks were received as of fall 2008). Contractors on site used smell suppression techniques including sawdust and almond scented atomizers. The project has expedited the backfilling process since it was going to be costly to import topsoil (this is free) and the company is reseeding the site for free. Small contractors are now able to apply for the backfilling portion boosting the local economy.**

Objective:

Promote the new Pennsylvania Energy Harvest Program, funded by a combination of sources including the Clean Air Fund, Growing Greener and U.S. Department of Energy, as a means to use environmental problems as economic opportunities.

Accomplishments:

- **In Schuylkill County, work continued on the Audenreid Treatment System to repair the system with FEMA Grant (work was completed by July 2008). Additional funding from a "Restoring Brook Trout" Grant awarded to replace $40K worth of limestone. EMARR Inc. Energy Harvest Grant ($280K) transferred to this project to place micro-hydro turbines on the outlet of treatment tanks to generate power for flushing mechanisms.**
- **Upper Saxman Run Discharge Project in Westmoreland County (Loyalhanna Creek Watershed). The discharge water will flow through a microhydroturbine to generate electricity to operate an AMD treatment system at the Latrobe Sewage Treatment System.**
- **Roaring Run Watershed Association "Microhydroturbine Power Generation Plant for AMD Treatment System" project in Armstrong County (Kiskiminetas**

River Watershed). Stream flow will be utilized to generate the electricity needed to operate an AMD treatment system.

Objective:
Encourage industry to establish and implement a means for beneficial use of abandoned mine pools and mine discharges by 2009.
Accomplishments:

- **Eastern Pennsylvania Coalition for Abandoned Mine Reclamation, Luzerne County is implementing a Growing Greener grant to characterize the quality, quantity, and flow path of the mine pools in the Anthracite Region. The project is coordinated with the Pottsville DMO and DMS office as well as the Wilkes-Barre BAMR office. This will be a critical tool in promoting mine water reuse in the Anthracite Region.**
- **The Shamokin Creek AMD Treatment Feasibility Study funded by Growing Greener is looking specifically at mine water reuse.**
- **Exelon Corporation completed their 5 year demonstration project on pumping mine water at Wadesville, Schuylkill County to augment their water usage in the Schuylkill River. Exelon has petitioned DRBC approve the project.**
- **An activated iron sludge pilot project was set up on the Scott Overflow in the Shamokin Creek Watershed, Northumberland County by Iron Oxide Technologies LLC. The test was run on the discharge for several months to gather water and sludge quality results. This discharge was selected due to its proximity to an industrial park in need of water in order to expand. Results showed that mine pool water could be cleaned up and supplied in a more cost effective manner than conventional supplies.**
- **DEP and other organizations are studying the possibility of using mine water for fracing in drilling for gas in the Marcellus Shale.**

Objective:
Encourage and implement the redevelopment of abandoned mine lands for recreational, industrial, commercial and residential uses by 2009.
Accomplishments:

- **The Pottsville Office issued 12 Financial Guarantees in the amount of $568,250 as an incentive for remining and reclamation of approximately 100 acres.**

Objective:
Continue to encourage the use of coal refuse and waste coal to generate electricity and to refine technology that will convert waste coal into energy, thereby cleaning up refuse piles and reducing surface production of AMD.
Accomplishments:

- **In the face of the energy crisis that spanned this fiscal year, the coal mining industry saw increases as the country searched for alternative sources of energy. Twenty-six active mining companies renewed or started mining coal in the EPCAMR Region in this fiscal year according to eFacts. Six of these surface mine permits included refuse reprocessing operations in Luzerne, Carbon and Sullivan Counties.**

Objective:
Use existing sources of funding and encourage establishment of new sources of funding for reclamation and mine drainage treatment.
Accomplishments:

- **OSM has budget authority to enter into project agreements with local non-profit watershed groups, to remediate AMD. During the time period of October 2007 through September 2008, OSM awarded six new cooperative agreements in the total amount of $460,250. These projects involve multiple partners, providing financial and other assistance.**
- **Growing Greener, Nonpoint Source Section 319 program and other funding sources were used to complete 65 projects that dealt with abandoned mine drainage problems.**
- **The AML Campaign succeeded in working with lawmakers to reauthorize the Surface Mining Control and Reclamation Act in December 2006 Amendments to Title IV. Members continued participation in this fiscal year by attending specific meetings to deal with issues that arose in the public comment sessions. As a response to this legislation the Office of Surface Mining passed a set of guidelines in late summer 2008. The group responded to this lengthy document in the interest of Pennsylvania coal communities in August 2008.**

2.2.7 Silviculture

Goal 1

Objective:

Provide effective communications with 744,000 woodlot owners and 4,000 forest practitioners, managing 13 million acres of private woodland, on forest best management practices for silvicultural activities.

Accomplishments:

- **Woodland owner groups continue to be the strongest source of peer-to-peer outreach of best practices. There are currently twenty-four forest landowner groups in Pennsylvania. New Woodland Owner Groups are in the formation process in York-Adams and Pike-Monroe Counties.**
- **During 2008, 849 Sustainable Forestry Initiative (SFI) packets were distributed to landowners prior to timber harvesting.**
- **Penn State Forest Resources Cooperative Extension continues to provide approximately 10 monthly Forest Stewardship News Releases on forest best management practices to forest landowners and agencies**.
- **Twenty-two new Pennsylvania Forest Stewards completed core training in 2008. The Pennsylvania Forest Stewards held an in-service training on Forests and Waters on May 3, 2008 at Penn State's Forestry Building; it included in-depth info on the relationship between forests and water quality and involved both classroom and hands-on experience.**
- **The DCNR Bureau of Forestry has released the document, "Guidance on Harvesting Woody Biomass in Pennsylvania." The report addresses a variety of public issues, best management practices, and recommendations related to forest biomass and energy. Also, the SFI program is in cooperation with the Bureau of Forestry developing a logger training program around this publication. The training will be introduced in the first half of 2009.**

Goal 2

Objective:

Provide training to forest practitioners on using water quality best management practices for silvicultural activities.

Accomplishments:

- **In 2008, 136 individuals took Environmental Logging/Advanced Environmental Logging training. Through continuing education courses, 276 individuals have taken training.**
- **A silviculture BMP demonstration site is in progress on Sproul State Forest in Clinton County. This new area will be utilized by the service forester to conduct forest practitioner and forest landowner trainings. Silviculture and Water Quality BMPs are key features of the demonstration area. This 40 acre site will feature 15 different silvicultural treatments with interpretive signage. Plans include disabled-accessible trails and parking as well as a potential picnic pavilion to facilitate tours and events.**

Goal 3

Objective:

To assure that timber harvesting activities are carried out in such a way that the potential for polluted runoff during harvesting is minimized.

Accomplishments:

- **A study conducted by the Pennsylvania SFI has identified that in those rare cases where timber harvesting activities lead to water quality degradation, improper installation of water bars and/or broad-based dips, or failing to properly install the appropriate protection measures at and around log landings are primarily at fault. The environmental logging training offered by the SFI program will place special emphasis on these areas.**

Goal 4

Objective:

To provide the tools to forest landowners and timber harvesters to help them manage forest lands for water quality protection and sustainability.

Accomplishments:

- **Potomac Watershed Conservancy's "Growing Native" program continues expanding in Pennsylvania, including areas outside of the Potomac River watershed. The DCNR, Bureau of Forestry and Forest Districts have the lead for collecting native plant seeds.**
- **The goal set in 2002 to restore 500 miles of riparian forested buffers by the year 2010 has been met. To date, a total of 3,174 miles of forested riparian buffers have been added in the Chesapeake Bay watershed. More than 3,600 miles of forested riparian buffers have been added Statewide. During 2008, 253 miles were added in the Chesapeake Bay watershed, with a total of 3,617 miles added statewide. In addition, 434 of the total statewide miles have easements.**
- **Landowner enrollment in the Forest Stewardship Program (FSP) continues. Sixty-one new stewardship plans were written between October 2007 and September 2008.**

Goal 5

Objective:

To encourage people outside of the forest landowner/practitioners/logger constituency to utilize trees to help attain water quality improvements.

Accomplishments:

- **By September 30, 2008, 2,940 people had attended "Tree-Tender" training classes in five metropolitan areas through the TreeVitalize program. This number exceeds the original program goal for training 2,000 individuals by 2008. With DCNR Growing Greener funding, a TreeVitalize Program Administrator was hired in September 2008 to assist with the statewide roll-out of the TreeVitalize Program. Initial negotiations have been made with the Pennsylvania Landscape and Nursery Association to provide a point-of-**

purchase coupon program for homeowners to provide a discount on the purchase of a tree.

- **Plants were also provided through TreeVitalize, a program launched in Pennsylvania to plant more than 20,000 shade trees and add 1,000 acres of forested riparian buffers in Bucks, Chester, Delaware, Montgomery and Philadelphia counties. As of September 30, 2008, 20,000 trees had been planted, and 300 acres of riparian buffer had been restored. An additional 250 trees were planted in spring 2008 with the launch of the program in Pittsburgh. DCNR has announced the statewide expansion of the TreeVitalize program to include an overall goal of planting 1,000,000 trees statewide by the end of 2012, including approximately 800,000 trees planted in riparian buffer areas.**
- **The Alliance for the Chesapeake Bay, along with the U.S. Forest Service, and the Chesapeake Bay Program, has developed a brochure and outreach program to promote the new web-based Forestry for the Bay Program. The website is up and running. The free, voluntary membership program is aimed at helping small and medium-sized landowners utilize sound conservation practices in woodland management.**

2.3 Additional Sources of Information

Several other important pieces of information help to show the progress that has been made during the past federal fiscal year. The Commonwealth is developing Watershed Implementation Plans (WIPs) that will help implement watershed restoration projects that are funded with Section 319 NPS Program and other grant sources.

There are many sources of funding that are helping Pennsylvania to implement its NPS Management Program Plan. These include both local, state and federal funding streams, some of which are through grant programs such as Pennsylvania's *Environmental Stewardship and Watershed Protection Act (Growing Greener)* and the federal *Clean Water Act Section 319 NPS Implementation Program*. Other sources come from local organizations and the private sector, though these are more difficult to quantify.

The Commonwealth's NPS Management Program also works with federal agencies in addition to the U.S. Environmental Protection Agency and strives for consistency in implementing watershed protection and restoration with these federal organizations. We anticipate increased cooperation as we work together to implement the recently passed American Recovery and Reinvestment Act of 2009.

2.3.1 Watershed Implementation Plans

Pennsylvania's NPS Management Program has supported a watershed-based planning effort since FFY2003. The number of plans developed and implemented through September 30, 2008 is reported here as a measure of progress in that element of the program. At the end of FFY2008, twenty-two watershed implementation plans (WIPs) had been completed. These may be viewed at the DEP NPS Management program web site http://www.depweb.state.pa.us/watershedmgmt/cwp/view.asp?a=1430&q=482387. All but two of these WIPs are now being implemented. Twelve additional plans are currently in various stages of development. All WIPs focus on NPS impaired watersheds that have active watershed groups and data from previous studies.

Tables 2-1 and 2-2 show progress made with WIP implementation. This information was first included in Pennsylvania's FFY2005 NPS Annual Report. Table 2-1 includes WIPs completed and accepted by EPA. These plans address primarily agriculture and AMD nonpoint sources. Table 2-2 includes plans that are still being developed. These also cover primarily agricultural and AMD-impaired watersheds. The Jacobs Creek and Pine Creek watersheds include substantial urban runoff problems as well. The EPA will calculate water miles and acres covered based on the information in Tables 2-1 and 2-2.

Load reduction estimates for projects being implemented within the WIPs are also included in Tables 2-1 and 2-2. Figure 2-1 shows the location of WIP areas within Pennsylvania.

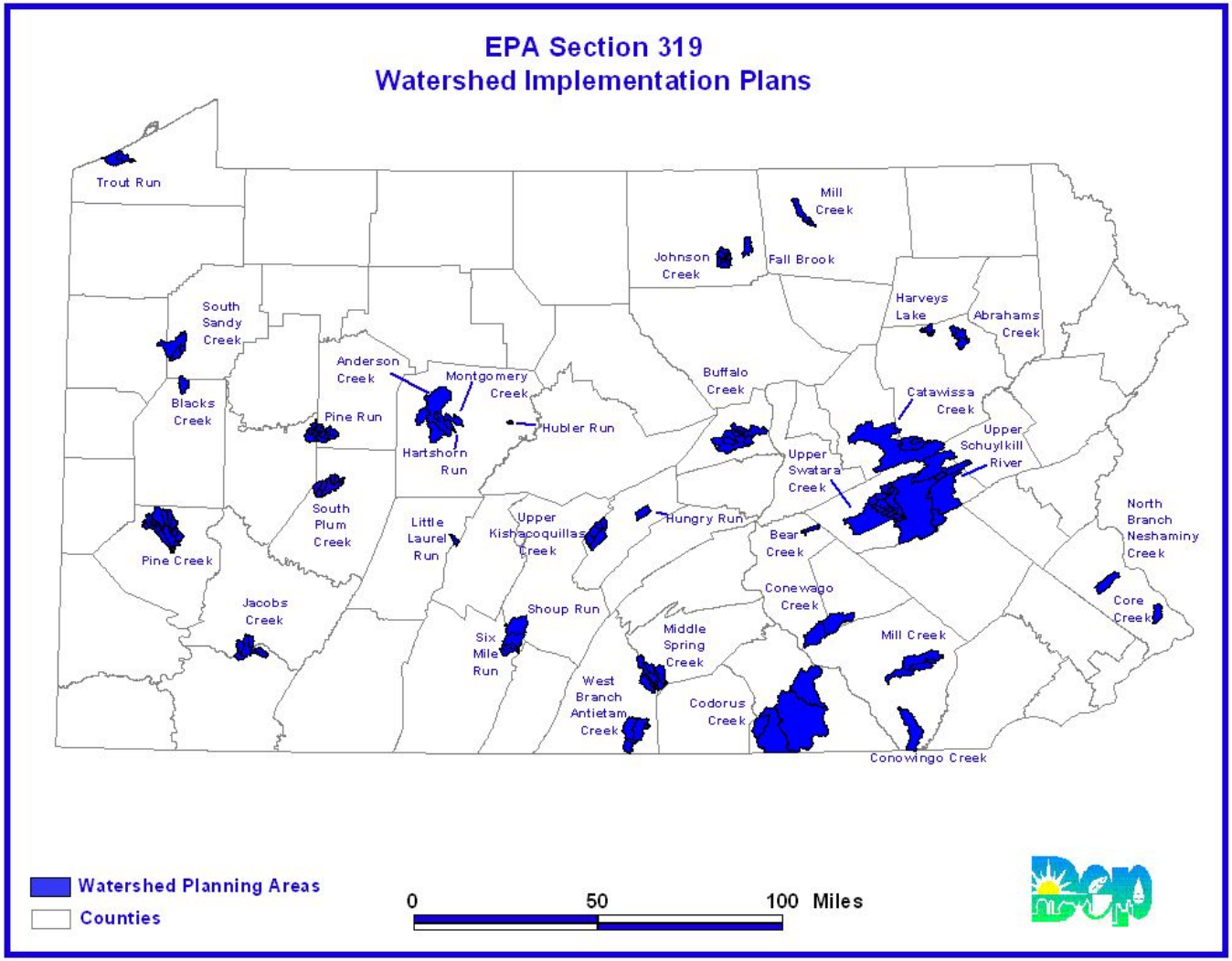


Figure 2-1 Watershed Implementation Plan Locations

Table 2-1: Watershed Implementation Plans Completed and Accepted by EPA

WIP Projects Impacting Abandoned Mine Drainage Pollutants

Watershed (County)	**Nonpoint Source Impairment(s)**	**S. 319 grant / project # implementing the plan**	**NPS Pollutant Load Reduction**			
			Acidity	**Fe**	**Al**	**Mn**
Catawissa Creek (Schuylkill)	AMD	1999 / 17	nda	nda	nda	nda
		2001 / 55 (design only)	n/a	n/a	n/a	n/a
		2004 / 17 (design only)	n/a	n/a	n/a	n/a
		2005 / 45 A	3366	158	229	29
		2006 / 19	nda	nda	nda	nda
		2007 / 17	644	68.5	0	0
		Sub-totals	*4,010*	*226.5*	*229*	*29*
Shoup Run (Huntingdon)	AMD	2002 / 17	183	2	20	2.5
		2004 / 19	144	0.5	11.4	4
		2005 / 18	6	0	1	0
		2005 / 19	27	0	3	0
		2005 / 21	nda	nda	nda	nda
		2006 / 18	94	3	1.5	2
		2007 / 13	70	5.5	0	0
		Sub-totals	*524*	*11*	*36.9*	*8.5*

n/a = not applicable **nda = no data available**

Table 2-1: Watershed Implementation Plans Completed and Accepted by EPA

WIP Projects Impacting Abandoned Mine Drainage Pollutants

WIP Projects Impacting Abandoned Mine Drainage Pollutants Watershed (County)	Nonpoint Source Impairment(s)	S. 319 grant / project # implementing the plan	NPS Pollutant Load Reduction			
			Acidity	Fe	Al	Mn
Six Mile Run/Sandy Run/Longs Run (Bedford)	AMD	2004 / 20	0	67	5	0
		2005 / 12	0	0.2	0	0
		2005 / 13	18	0.4	1.6	0
		2006 / 12 (design only)	n/a	n/a	n/a	n/a
		2006 / 13	145	10	11	0
		2006 / 14 (design only)	n/a	n/a	n/a	n/a
		2006 / 15	27	0.2	2	0
		2006 / 16 (design only)	n/a	n/a	n/a	n/a
		2006 / 30 A	0	0	0	0
		2006 / 30 B	0	0	0	0
		2007 / 10	60	5	9	0.1
		2007 / 11	35	4	0.5	0.2
		2007 / 12	13	1.5	2	0.5
		2008 / 10	133	26	10	0.5
		2008 / 11	193	14	14	1.1
		2008 / 12	0	0	0	0
		Sub-totals	*624*	*128.3*	*55.1*	*2.4*
Bear Creek (Dauphin County)	AMD	2004 / 18	nda	nda	nda	nda
		2006 / 30 G	0	0	0	0
		2007 / 16	0	0	256	0
		Sub-totals	*0*	*0*	*256*	*0*

Table 2-1: Watershed Implementation Plans Completed and Accepted by EPA

WIP Projects Impacting Abandoned Mine Drainage Pollutants

Watershed (County)	**Nonpoint Source Impairment(s)**	**S. 319 grant / project # implementing the plan**	**NPS Pollutant Load Reduction**			
			Acidity	**Fe**	**Al**	**Mn**
Upper Schuylkill River (Schuylkill)	AMD	1999 / 41	nda	nda	nda	nda
		2002 / 15	0	0	5	0
		2003 / 21	82	38	4	0
		2004 / 16	0	52	10	6
		2004 / 21	0	538	31	153
		2007 / 18	644	69	0	0
		Sub-totals	*726*	*697*	*50*	*159*
Little Laurel Run (Cambria)	AMD	2005 / 15	166	30	1.4	0
		2007 / 14	75	4	6	0
		2008 / 17	0	0	0	0
		Sub-totals	*241*	*34*	*7.4*	*0*
Pine Run (Jefferson and Armstrong)	AMD	2005 / 23	0	459	0	0
		Sub-totals	*0*	*459*	*0*	*0*
Upper Swatara Creek (Schuylkill)	AMD	2001 / 19	nda	nda	nda	nda
		2003 / 20	nda	nda	nda	nda
		2005 / 14	83	0	3.5	3
		Sub-totals	*83*	*0*	*3.5*	*0*
Anderson Creek (Clearfield)	AMD	2007 / 15	6	0.4	0.6	0
		2007/ 26A (social mktg.)	n/a	n/a	n/a	n/a
		2007/ 26B (social mktg.)	n/a	n/a	n/a	n/a
		2008 / 13	26	2	2	0
		Sub-totals	*32*	*2.4*	*2.6*	*0*
Johnson Creek (Tioga)	AMD	2000 / 25	nda	nda	nda	nda
		2003 / 18 (design only)	n/a	n/a	n/a	n/a
		2005 / 16	83	0	3.5	3
		Sub-totals	*83*	*0*	*3.5*	*3*

Table 2-1: Watershed Implementation Plans Completed and Accepted by EPA

WIP Projects Impacting Abandoned Mine Drainage Pollutants

Watershed (County)	**Nonpoint Source Impairment(s)**	**S. 319 grant / project # implementing the plan**	**NPS Pollutant Load Reduction**			
			Acidity	**Fe**	**Al**	**Mn**
Black's Creek (Butler)	AMD	2005 / 24	0	52	0	16
		Sub-totals	*0*	*52*	*0*	*16*
Hubler Run (Clearfield)	AMD	1999 / 62	nda	nda	nda	nda
		2000 / 28	nda	nda	nda	nda
		2005 / 17	290	0	33	0
		2006 / 17	0	3	1	0
		2008 / 15	nda	nda	nda	nda
		Sub-totals	*290*	*3*	*34*	*0*
Montgomery Creek (Clearfield)	AMD	2008 / 14	0	0	0	0
		Sub-totals	*0*	*0*	*0*	*0*

Table 2-1: Watershed Implementation Plans Completed and Accepted by EPA

WIP Projects Impacting Nitrogen, Phosphorus and Sediment Pollutants

Watershed (County)	**Nonpoint Source Impairment(s)**	**S. 319 grant / project # implementing the plan**	**NPS Pollutant Load Reduction**		
			Nitrogen	**Phosphorus**	**Sediment**
Core Creek/Lake Luxembourg (Bucks)	Nutrients, Sediment	1999 / 38	nda	nda	nda
		2004 / 29	0	35	46.5 TSS
		Sub-totals	*0*	*35*	*46.5*
Upper Kishacoquillas Creek (Mifflin)	Nutrients, Sediment	2002 / 24	101	22	12
		2002 / 28	3,291	1,562	102
		2002 / 32	410	204	204
		2005 / 26	3,621	829	115
		2005 / 27 (combined w/ 26)	n/a	n/a	n/a
		2006 / 30 C	1,565	437	115
		2007 / 23 A	0	0	0
		Sub-totals	*8,988*	*3,054*	*548*
Conewago Creek (Dauphin, Lancaster and Lebanon)	Phosphorus, Sediment	2007 / 19	3,309	1,007	432
		2007 / 21 (design only)	n/a	n/a	n/a
		Sub-totals	*3,309*	*1,007*	*432*
Mill Creek (Lancaster)	Nutrients, Sediment	1999 / 59	nda	nda	nda
		2005 / 28	15,407	3,845	1,005
		2005 / 29	1,102	550	550
		Sub-totals	*16,509*	*4,395*	*1,555*

n/a = not applicable **nda = no data available**

Table 2-1: Watershed Implementation Plans Completed and Accepted by EPA

WIP Projects Impacting Nitrogen, Phosphorus and Sediment Pollutants

Watershed (County)	**Nonpoint Source Impairment(s)**	**S. 319 grant / project # implementing the plan**	**NPS Pollutant Load Reduction**		
			Nitrogen	**Phosphorus**	**Sediment**
Codorus Creek (York)	Nutrients, Sediment	1999 / 22	nda	nda	nda
		2000 / 39	nda	nda	nda
		2002 / 31	0	0	350
		2002 / 33	0	0	119
		2003 / 32 (design only)	n/a	n/a	n/a
		2003 / 33	0	0	5,300
		2004 / 26	0	0	230
		2004 / 28	0	0	300
		2004 / 32	0	0	60
		2005 / 32	0	0	0
		2005 / 42 (monitoring)	n/a	n/a	n/a
		2005 / 45 B	0	0	981
		2006 / 30 D	3,034	2,016	1,920
		2006 / 30 E	0	0	750
		2006 / 30 F	0	0	445
		2007 / 20	0	0	1,000
		Sub-totals	*3,034*	*2,016*	*12,436*
Conowingo Creek (Lancaster)	Nutrients, Sediment	2008 / 21	0	19	2.25
		Sub-totals	*0*	*19*	*2.25*
West Branch Antietam Creek (Franklin)	Nutrients, Sediment	None	n/a	n/a	n/a
		Sub-totals	*0*	*0*	*0*

Table 2-1: Watershed Implementation Plans Completed and Accepted by EPA

WIP Projects Impacting Nitrogen, Phosphorus and Sediment Pollutants

Watershed (County)	**Nonpoint Source Impairment(s)**	**S. 319 grant / project # implementing the plan**	**NPS Pollutant Load Reduction**		
			Nitrogen	**Phosphorus**	**Sediment**
Mill Creek/Stephen Foster Lake (Bradford)	Phosphorus, Sediment	2001 / 51	187,313	72,588	216
		Sub-totals	*187,313*	*72,588*	*216*
Hungry Run (Mifflin)	Nutrients, Sediment	2009 / 24	nda	nda	nda
		Sub-totals	*0*	*0*	*0*

Table 2-2: Watershed Implementation Plans Being Developed [1]

WIP Projects Impacting Abandoned Mine Drainage Pollutants

Watershed (County)	Nonpoint Source Impairment(s)	S. 319 grant / project # implementing the plan	NPS Pollutant Load Reduction			
			Acidity	Fe	Al	Mn
South Sandy Creek (Venango)	AMD	None	n/a	n/a	n/a	n/a
Hartshorn Run (Clearfield)	AMD	None	n/a	n/a	n/a	n/a
Fall Brook (Tioga)	AMD	2005 / 45C (design only)	n/a	n/a	n/a	n/a
South Branch Plum Creek (Indiana)	AMD, Sediment	None	n/a	n/a	n/a	n/a
		Sub-totals	*0*	*0*	*0*	*0*

n/a = not applicable **nda = no data available**

[1] This includes plans in final revision, under DEP/EPA review, completing a draft or being prepared.

Table 2-2: Watershed Implementation Plans Being Developed

WIP Projects Impacting Nitrogen, Phosphorus and Sediment Pollutants

Watershed (County)	**Nonpoint Source Impairment(s)**	**S. 319 grant / project # implementing the plan**	**NPS Pollutant Load Reduction**		
			Nitrogen	**Phosphorus**	**Sediment**
Buffalo Creek (Union)	Nutrients, Sediment	2008 / 20	nda	nda	nda
		Sub-totals	*0*	*0*	*0*
Harvey's Lake (Luzerne)	Nutrients, Sediment	2000 / 45	nda	nda	nda
		2001 / 45	0	132	0
		2002 / 30	0	66	0
		2005 / 36	0	24	0
		Sub-totals	*0*	*212*	*0*
Abrahams Creek/ Frances Slocum Lake (Luzerne)	Nutrients, Sediment	None	n/a	n/a	n/a
		Sub-totals	*0*	*0*	*0*
Jacobs Creek (Fayette, Westmoreland)	Nutrients, Sediment	2008 / 23	nda	nda	nda
		Sub-totals	*0*	*0*	*0*
North Branch Neshaminy Creek/ Lake Galena (Bucks)	Nutrients, Sediment	1998 / 18	nda	nda	nda
		1999 / 39	nda	nda	nda
		Sub-totals	*0*	*0*	*0*

Table 2-2: Watershed Implementation Plans Being Developed

WIP Projects Impacting Nitrogen, Phosphorus and Sediment Pollutants

Watershed (County)	**Nonpoint Source Impairment(s)**	**S. 319 grant / project # implementing the plan**	**NPS Pollutant Load Reduction**		
			Nitrogen	**Phosphorus**	**Sediment**
Trout Run / 2 UNTs (Erie)	Nutrients, Sediment	2009 / 21	nda	nda	nda
		Sub-totals	*0*	*0*	*0*
Pine Creek (Allegheny)	Nutrients, Sediment, Pathogens	2008 / 22	0	0	467
		Sub-totals	*0*	*0*	*467*
Middle Spring Creek (Cumberland, Franklin)	Nutrients, Sediment	2001 / 50	72,883	21,668	5,591
		Sub-totals	*72,883*	*21,668*	*5,591*

2.3.2 Funding Sources for Nonpoint Source Management Program

There exist many funding sources that have been utilized to support the state's NPS Management Program and NPS implementation activities. This brief summary represents many of the more substantial sources of funding. We recognize that many local funding sources may not be represented here.

Funding cycles are for the calendar year, state fiscal year or the federal fiscal year. Federal agencies utilize the federal fiscal year from October 1st through September 30th. Local and state funding cycles are usually based on the calendar year, or state fiscal year from July 1st through June 30th. Funding sources are identified in Table 2-3. All figures are in 2008 dollars unless otherwise noted.

Table 2-3: Nonpoint Source Program Funding

Funding Source	**$ amount in millions**
Department of Environmental Protection (DEP)	
Environmental Stewardship and Watershed Protection Act (Growing Greener)	
DEP-Bureau of Abandoned Mine Reclamation (BAMR)	10.800
Conservation District Watershed Specialists	2.084
Conservation Reserve Enhancement Program (CREP)	3.802
Watershed Protection Projects – Growing Greener I	8.038
Watershed Protection Projects – Growing Greener II	9.809
Sub-total:	**34.533**
Bureau of Abandoned Mine Reclamation (BAMR)	
Other State Sources including Bond Forfeiture and PennDOT	(2007) 2.400
Sub-total:	**2.400**
Bureau of Watershed Management	
Chesapeake Bay Program	3.366
Conservation District Fund Allocation Program	3.600
Dirt and Gravel Roads Program	4.000
Sub-total:	**10.966**
Department of Agriculture (PDA)	
Nutrient Management Grant Program	0.230
Nutrient Management Fund	3.277
Conservation District Financial Assistance Program	1.660
Resource Enhancement and Protection (REAP)	10.000
Sub-total:	**15.167**
U.S. Environmental Protection Agency	
Federal Clean Water Act-Section 319 NPS Implementation Program	5.730
Sub-total:	**5.730**

Table 2-3: Nonpoint Source Program Funding (continued)

U.S.D.A. Natural Resources Conservation Service – Mandatory Program Allocations	**$ Amount in Millions**
Agricultural Management Assistance (AMA)	0.940
Environmental Quality Incentive Program (EQIP)	14.600
Wetland Reserve Program (WRP)	0.520
Wildlife Habitat Incentive Program (WHIP)	0.880
Conservation Security Program (CSP)	2.100
Sub-total:	**19.040**
U.S.D.A. Farm Services Agency (FSA)	
Conservation Reserve Enhancement Program (CREP)	(2007) 4.400
Sub-total:	**4.400**
Office of Surface Mining (OSM)	
Watershed Cooperative Agreement Projects (WCAP)	0.460
Abandoned Mine Lands (AML) Program (through DEP-BAMR)	19.700
Sub-total:	**20.160**
Total:	**112.396**

2.3.3 Federal Consistency in Implementing NPS Management Program

There is a significant amount of federally owned land in Pennsylvania. The DEP strives to maintain good working relationships with federal land management agencies that manage lands within the Commonwealth. Management plans that have been developed for federally owned lands try to be consistent with Pennsylvania's Nonpoint Source Management Program Plan.

There are several federal agencies that own and manage federal lands in Pennsylvania. These include the:

- U.S. Department of Agriculture, U.S. Forest Service
- U.S. Department of the Interior, U.S. Fish and Wildlife Service
- U.S. Department of the Interior, National Park Service
- U.S. Department of Defense

U.S. Department of Agriculture, U.S. Forest Service

Allegheny National Forest
The Allegheny National Forest is the single largest holding of land operated by the federal government within the state. This area is located in parts of several northwestern Pennsylvania counties and encompasses approximately 513,000 acres of land. It is a largely forested and undeveloped area. The U.S. Forest Service is responsible for managing the forest resources within the Allegheny National Forest. Nonpoint source pollution control activities are implemented through timber sale contract provisions. See the following website for more information: http://www.fs.fed.us/r9/forests/allegheny.

U.S. Department of the Interior, Fish and Wildlife Service

Erie and John Heinz National Wildlife Refuges (NWR)
The Erie National Wildlife Refuge (NWR) in northwestern Pennsylvania and the John Heinz National Wildlife Refuge in southeastern Pennsylvania are the two NWRs located within the state. The U.S. Fish and Wildlife Service oversees the management of the NWR system in the United States, and works to conserve, protect and enhance fish, wildlife, and plants and their habitats.

The John Heinz NWR is managed to protect and enhance the largest remaining freshwater tidal marsh in the Commonwealth. These tidal wetlands are located in the Delaware River estuary in southeastern Pennsylvania. They are an important water resource for residents of the area. The John Heinz NWR website http://www.fws.gov/northeast/heinz/welcome.htm provides more information.

The Erie NWR is located in Crawford County. The Erie NWR is a partner agency in the Pennsylvania Partners for Wildlife Program which contributes significantly to the Ohio River Valley Ecosystem and North American Waterfowl Management goals. The Erie NWR website, http://erie.fws.gov, provides more information.

U.S. Department of the Interior, National Park Service

National Park Service Areas

The U.S. Department of the Interior, National Park Service, manages fifteen individual national park areas within the Commonwealth. Each National Park Service area is managed according to its enabling legislation and is under the direction of a park superintendent. The National Park Service's *2001 Management Policies* document is the basic service-wide document used to interpret statutes and other guidance that impacts park administration and management. This document is updated and revised as necessary. The park superintendent is responsible for water resources management within each of the Commonwealth's fifteen national park areas.

National Park Service managed areas within the Commonwealth include:

- Valley Forge National Historical Park
- Independence National Historical Park
- Delaware Water Gap National Recreation Area
- Lower Delaware National Wild and Scenic River

The following National Park Service website provides more information on each of Pennsylvania's National Park areas: http://www.nps.gov/ .

U.S. Department of Defense

Defense Environmental Restoration Program

The Pennsylvania Department of Environmental Protection (DEP) and the U.S. Army, Navy, Air Force and Defense Logistics Agency entered into a cooperative long-term agreement in 1998. This agreement links the federal government's Department of Defense (DOD) Defense Environmental Restoration Program with Pennsylvania's Land Recycling Program. The agreement is based on Pennsylvania's successful Multi-Site Agreement approach to voluntary cleanups. The Cooperative Multi-Site Agreement (CMSA) not only covers remedial work at current Department of Defense installations but also addresses formerly used defense sites. The primary goal of the Cooperative Multi-Site Agreement is to have all sites evaluated and a cleanup program in place at those sites in need of work by September 30, 2010. Pennsylvania had a total of 1,095 known sites; a total of 572 have been resolved under the agreement, 96 are scheduled for further remedial action and 416 have been deferred from any actions, as of March 2005.

Additional information on this program is provided on the DEP website at, http://www.depweb.state.pa.us/landrecwaste/cwp/view.asp?A=1241&Q=464187.

SECTION 3.0 -- IMPROVING WATERSHED STORIES

Over the past several years Pennsylvania's NPS Management Program staff has been writing and publicizing stories related to local watershed improvements. Although these stories are written primarily for internal communication within the DEP, local project sponsors and partners are also communicating these successes through local media outlets and newsletters. The NPS Management Program and the Water Management Deputate want to bring more attention to these watershed restoration efforts.

One example of a local business that is working to restore local nonpoint source-impaired watersheds is Stream Restoration, Inc. (SRI). SRI has received Section 319 NPS Program funding for a number of years and has realized successes in several watersheds. These include the Slippery Rock Creek watershed in northwestern Pennsylvania which is impacted by abandoned mine drainage (AMD). A local watershed organization that works to improve AMD impaired waters is the Slippery Rock Watershed Coalition (SRWC). The SRWC publishes a newsletter, *The Catalyst*, which publicizes local, regional and national AMD remediation actions, including projects implemented by Stream Restoration, Inc. SRI maintains a website to help publicize these efforts, www.streamrestorationinc.org, and the SRWC also maintains a website, www.srwc.org, that highlights this organization's efforts to remediate AMD problems.

In each of the watersheds in this section, significant watershed restoration efforts have been made and an improving watershed story has been written. In each of the improving watershed stories there is evidence that local water quality conditions are improving.

It is hoped that with additional water quality monitoring data in these areas we can show that water quality standards are being met and waters are being de-listed. When we reach this point, these improving watershed story summaries will be expanded to write more comprehensive watershed *Success Stories*.

This will lead to *Success Stories* being included on the DEP NPS Program website, http://www.depweb.state.pa.us/watershedmgmt/cwp/view.asp?a=1430&q=482303, the EPA Region III NPS Program site www.epa.gov/reg3wapd/nps/success/index.htm and the EPA National NPS Program site http://www.epa.gov/nps/success/. Pennsylvania prepared two *Success Stories* during FFY2008, which have been approved by the EPA and are now included on these websites.

FFY2008 Improving Watershed Story locations are shown in Figure 3-1.

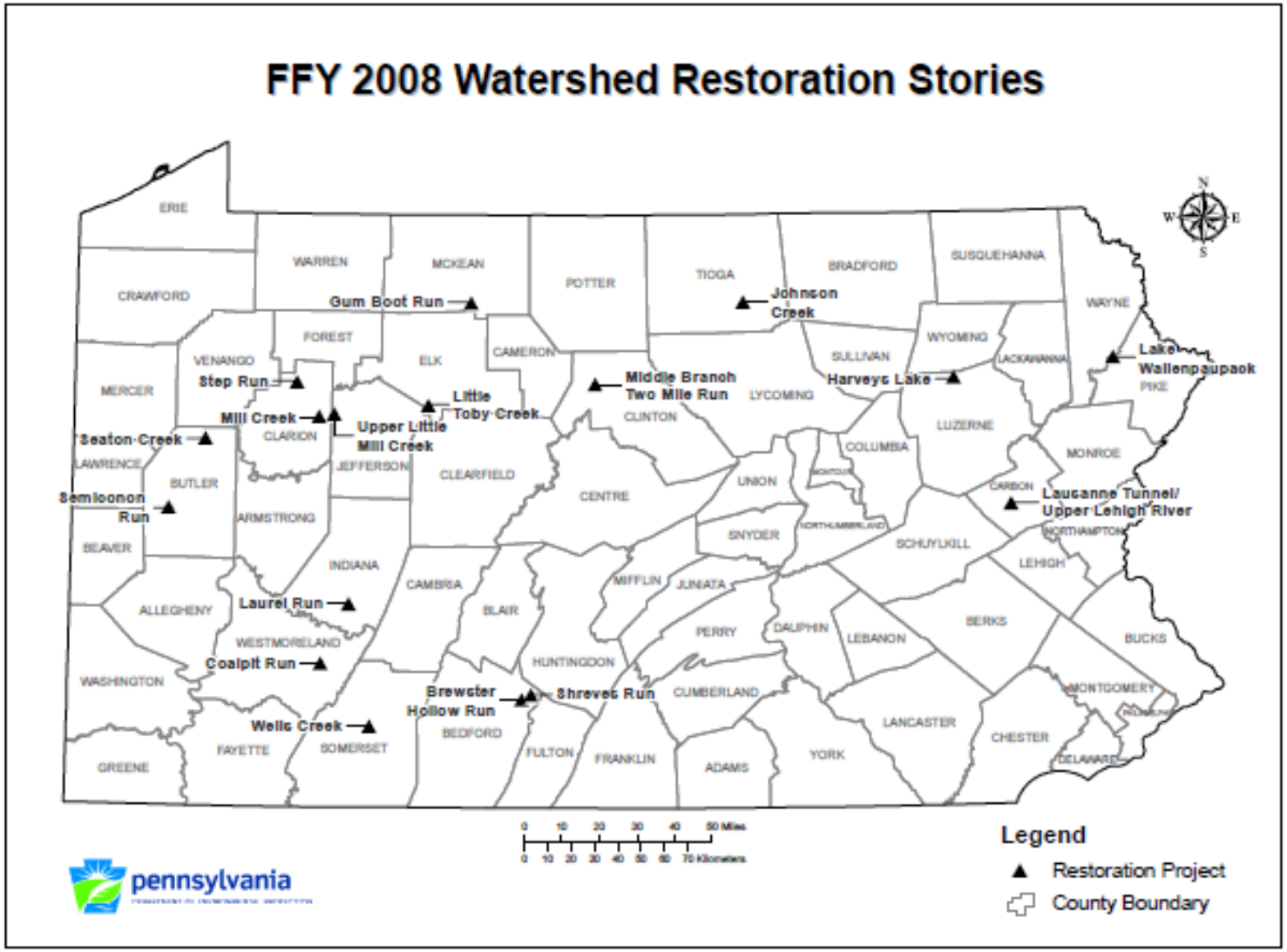


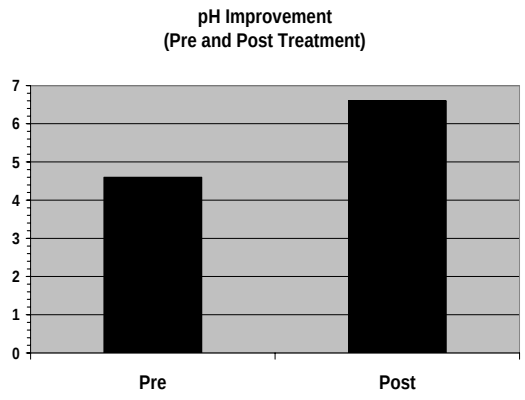
Figure 3-1 FFY2008 Improving Watershed Story Locations

3.1 FFY2008 Improving Watershed Stories - Restoration

All but two of the following 15 improving watershed stories are about improvements to water bodies that are impaired by sources of abandoned mine drainage (AMD).

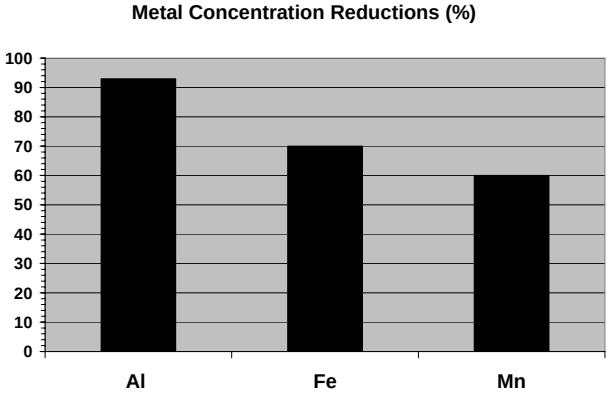
Coalpit Run – Cambria County

Coalpit Run flows west through northern Cambria County into the South Branch Blacklick Creek, which flows into Blacklick Creek and eventually empties into the Conemaugh River. Coalpit Run was placed on the State's 303(d) "List of Impaired Waters" in 1996. The source of impairment is Abandoned Mine Drainage (AMD), and the causes are metals and pH resulting from deep mine discharges. A TMDL was developed for the South Branch Blacklick Creek and its tributaries in 2005. The TMDL states that "Coalpit Run is degraded by mine drainage from several abandoned deep mine openings on the Lower Kittanning Coal seam.



The Blacklick Creek Watershed Association (BCWA) was formed in 1993. It now has approximately 150 members. They have completed a number of projects throughout the watershed working with a number of partners including, but not limited to, DEP, PA Fish & Boat Commission, Indiana and Cambria County Conservation Districts, and the PA Game Commission. The South Branch Blacklick Creek has been designated a priority watershed by DEP's Cambria District Mining Office.

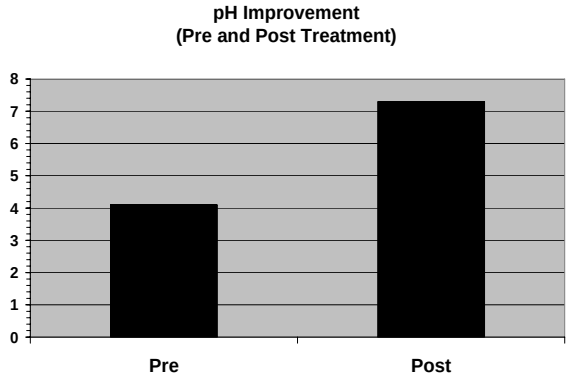
A Growing Greener Grant was obtained in 2000 to study the best options to remediate the AMD and design a treatment facility. This resulted in the design of a passive treatment system including a vertical flow reactor and sludge holding pond. The system was modified to include a sulfate reducing bioreactor as well, due to limited space to construct the system. A 319 Grant was utilized to fund construction of the treatment system, which was completed in September, 2005.



According to the VAPCO Engineering study, Coalpit Run upstream of the AMD discharges in 2001 had a 6.89 pH, Aluminum was measured at 0.2 mg/l, Iron was 0.25 mg/l and Manganese was 0.03. Each was well within State water quality standards. Samples in Coalpit Run below the acidic deep mine discharges exhibited

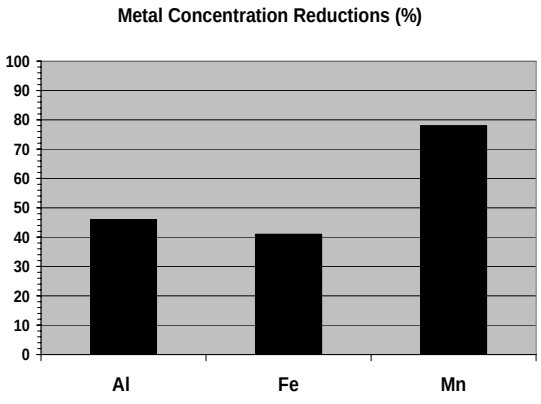
a pH as low as 4.6 and Aluminum, Iron and Manganese exceeded acceptable water quality criteria. According to the BCWA Final Report, after completion of the system, pH downstream was 6.6 and Aluminum levels were reduced from 10.68 mg/l to 0.76 mg/l (93%), Iron 2.03 mg/l to 0.60 mg/l (70%) and Manganese 1.31 mg/l to 0.52 mg/l (60%). There are additional impacts to Coalpit Run farther downstream that need to be addressed before it can be reassessed, but work is continuing.

Gum Boot Run – McKean County



Gum Boot Run flows into the East Branch Clarion River in southern McKean County on its way to Elk County, where it is backed up by the East Branch Dam in Elk State Forest to form East Branch Lake. Deep mining activities began in the Gum Boot Run watershed during the 1800's and lasted into the early 1900's. A result of those activities is a number of mine seeps that have been contributing Abandoned Mine Drainage (AMD) to the watershed. Gum Boot Run was placed on the State's 303(d) "List of Impaired Waters" in 2004. The source of impairment is Abandoned Mine Drainage (AMD) and the cause is low pH. Gum Boot Run does not yet have a TMDL.

One of the most active organizations involved in the watershed restoration is the Elk County Fishermen. Its efforts are concentrated on improving AMD issues that threaten water quality in the East Branch Lake Watershed, including Gum Boot Run. Beyond the Elk County Fishermen, partners have included DEP-BAMR, DEP-Knox DMO, DCNR, U.S. Army Corps of Engineers, PA Fish and Boat Commission and the Headwaters Charitable trust, as well as others.



Early efforts to clean up the watershed included sealing mines and grading and stabilizing spoil piles. Between 2001 and 2005, several passive treatment systems were installed in the Gum Boot Run Watershed. The Knox DMO installed a vertical flow system to add alkalinity directly into the stream in 2001. Then additional passive treatment systems were constructed to provide more treatment of AMD sources in the watershed. Funding sources included approximately $800,000 from Growing Greener and approximately $200,000 from the Appalachian Clean Streams Initiative.

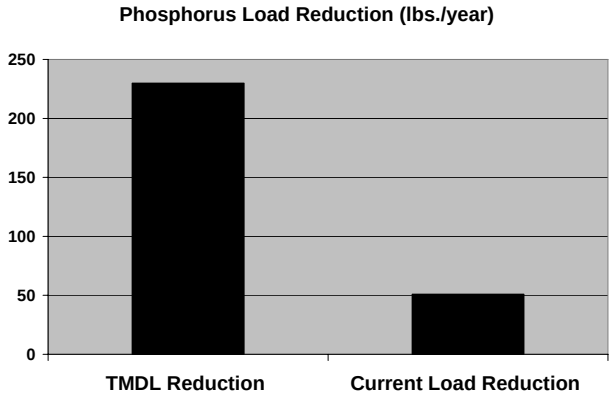
Samples taken by BAMR at the mouth of Gum Boot Run indicate that water quality has been improving as a result of the restoration efforts. The average pH was 4.1 between 1996 and 1999. It rose to 7.3 between 2007 and 2008. In addition to pH improvement, the metal load has been reduced. During the same time period, Iron was reduced 41%, Aluminum 46% and Manganese 78%. The stream is currently being assessed by Division of Water Quality Standards staff to ensure that minimum state standards are being met. If so, Gum Boot Run will be removed from the Impaired Waters List.

Harveys Lake – Luzerne County

Located northwest of Wilkes-Barre in Luzerne County, Harveys Lake is the largest natural lake by volume in Pennsylvania. The lake is drained by Harveys Creek, which flows into the Susquehanna River at West Nanticoke. The contributing watershed is mostly comprised of land surrounding the lake, because it has no large tributaries. This provides a unique opportunity to concentrate non-point source improvements on the immediate surrounding area to improve water quality, rather than working in a very large watershed. Harveys Lake has had elevated levels of phosphorus for decades, which has contributed to accelerated algae growth. As a result, in 1996 Harveys Lake was listed on the State's 303(d) "List of Impaired Waters". Sources of impairment in the lake include on-site wastewater treatment, stormwater runoff and stream bank erosion.

In 2002 a TMDL was completed for Harveys Lake that requires a 230 lbs/year reduction of the total phosphorus load. The Borough of Harveys Lake, the Harveys Lake Environmental Advisory Council and Princeton Hydro determined that action had to be taken to reduce the level of phosphorus entering the lake. This would remove the conditions that promoted excessive algae growth.

In 2000, 2001 and 2003 approximately $260,000 of Growing Greener and 319 Grant funds were acquired. These funds were used to develop a watershed restoration plan, construct BMPs and implement land use changes. BMPs included stabilization of stream banks, roadside swales and stormwater outfalls, removal of a large gravel bar and construction of a nutrient separation baffle box and an infiltration basin. The goal was to reduce high sediment loads and the associated phosphorus flowing into the lake.

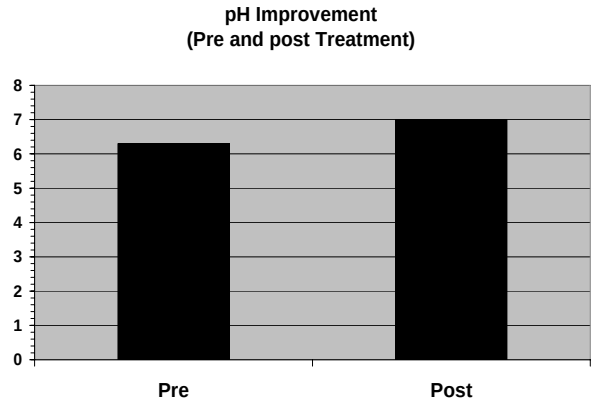


Currently, the partners are completing the Harveys Lake Stormwater Implementation Plan. This will recommend additional BMPs to continue reduction of phosphorus in the lake.

Approximately 22% of the required phosphorus reductions have currently been achieved. It is expected that the cumulative benefits of existing and future BMPs will eventually eliminate excessive growth of algae in the lake.

Johnson Creek – Tioga County

The headwaters of Johnson Creek begin west of the village of Arnot and flow to the Tioga River in south eastern Tioga County. This area has been subject to coal mining activities since the mid 1800's. Until the 1930's, deep mines dominated the coal extraction landscape. Strip mining continued into the 1990's. The legacy of coal mining was that many of the streams were lifeless, or at least negatively impacted from Abandoned Mine Drainage (AMD). In 2002 Johnson Creek was placed on the State's 303(d) "List of Impaired Waters". The source of impairment is AMD and the cause is metals and pH. A TMDL was developed for the Tioga River and its tributaries, including Johnson Run in 2003.



Discharge from the No. 2 Arnot Mine had elevated levels of acidity and aluminum, negatively impacting Johnson Creek. The discharge also contributed a large portion of the flow in Johnson Creek. A treatment system needed to be designed and constructed to reduce the elevated levels of acidity and aluminum.

The project sponsor was the Arnot Sportsmen's Club. The Babb Creek Watershed Association administrated the project funds. This is an ongoing partnership that began in the design and permitting phase of the project. Additional partners included Skelly & Loy, E.M. Brown, Alder Run Engineering and DCNR, Bureau of Forestry. A large portion of the project was located on DCNR property, in Tioga State Forest.

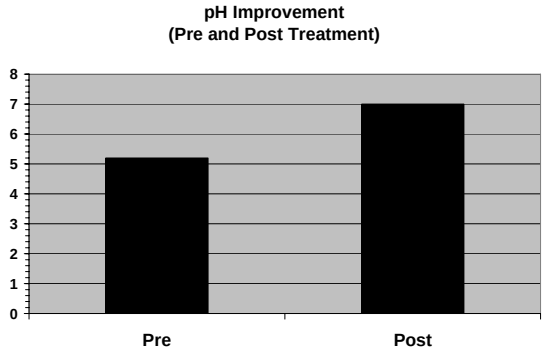
A Section 319 grant funded the construction of a passive treatment system, which was completed in November, 2006. The treatment system is composed of two limestone cells and two settling basins. The polluted discharge is treated twice, after which it is considerably improved and released to Johnson Creek.

Post construction monitoring of Johnson Creek has indicated that the stream is recovering. Comparing pre-project to post construction samples from Johnson Creek in Arnot, the pH rose from 6.3 to an average of 7.0. Acidity levels in the stream were virtually eliminated and aluminum was reduced by 71%. These improvements are contributing to cleaner headwaters of Johnson Creek, however work remains to be done downstream, before its confluence with the Tioga River.

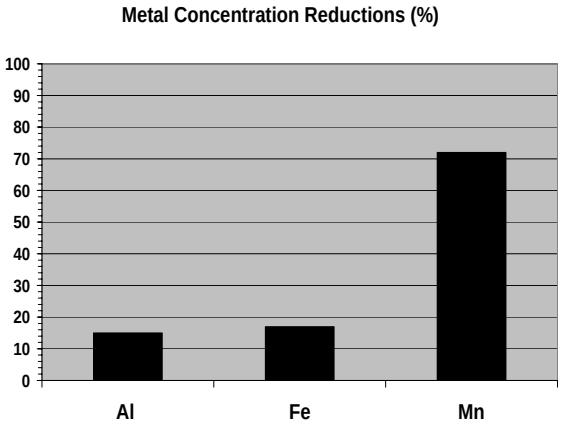
Johnson Run – Elk and McKean Counties

Johnson Run begins near Elk County's border with McKean County and flows into the East Branch of the Clarion River downstream of East Branch Dam. This area has been subject to strip mining and deep mining activities since the late 1800's. There are currently no mining activities in the watershed. Discharges from old deep mines are the most significant source of Abandoned Mine Drainage (AMD) in Johnson Run. The discharges from these sources lowered pH and elevated metal loads, mostly Manganese.

In the late 1990's, a local watershed group formed to improve East Branch Lake water quality as well as surrounding waters, including Johnson Run. The group, known as the Elk County Fishermen, was responsible for a number of projects intended to clean up AMD. A Restoration Plan for the East Branch Lake and Johnson Run was completed in 2002.



Utilizing Growing Greener and Watershed Restoration and Partnership Act funds, a treatment system consisting of vertical flow ponds, limestone lined channels, flush ponds, holding tanks and wetlands was constructed to treat flow from an abandoned deep mine that was one of the most significant contributors of AMD. It was completed in September, 2002. Another method of AMD abatement was implemented in the Johnson Run watershed the following year to treat AMD-producing spoil piles. Pyritic material in the spoil was covered with alkaline residuals consisting of limestone and paper fines provided by a local paper manufacturer, then stabilized with vegetation.



Samples from the mouth of Johnson Run have shown improvements. The most significant have been a rise in pH, from an average of 5.2 in 1998 to 7.0 in 2005, and a 72% reduction of the Manganese load over the same period. Aluminum and Iron levels have decreased by 15% and 17% respectively. The treatment systems remain in place and continue to improve water quality.

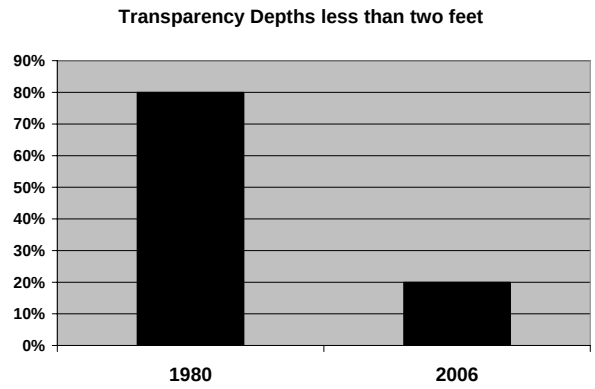
Lake Wallenpaupack – Pike and Wayne Counties

Lake Wallenpaupack lies on the border of Pike and Wayne Counties, east of Scranton, PA. The lake's watershed is approximately 219 square miles. It is a relatively large lake, covering approximately 5700 acres. The Pennsylvania Power and Light Co. (PP&L) built a dam on Wallenpaupack Creek in 1926 to inundate the stream valley for hydroelectric power generation. The lake has become a recreational destination for the northeastern region of the State. The number of people utilizing the lake has continuously increased for years. Population within the lake's watershed has nearly tripled over the past few decades. Stormwater runoff carrying phosphorous has contributed to frequent algal blooms. As a result, Lake Wallenpaupack was placed on the State's 303(d) "List of Impaired Waters" in 1996. The source of impairment is nutrients and suspended solids caused by agriculture and mercury from atmospheric deposition. A TMDL was approved for the lake in 2005.

The Lake Wallenpaupack Watershed Management District (LWWMD) was formed in 1979 as members of local communities saw the need to protect this resource. Their three-fold mission is to study the lake to determine the Best Management Practices (BMPs) that will most effectively improve water quality, continuous monitoring of the lake and public education. Using Growing Greener Funds as one of the sources, the LWWMD contracted with F.X. Browne, Inc. in 2006 to study the impairments and recommend improvements for the lake. This resulted in development of the Lake Wallenpaupack Watershed Management Plan.

Due to elevated phosphorus levels and very cool water temperatures at the bottom of the lake, dissolved oxygen can be nearly depleted at lower depths, making it very difficult for certain species of fish to survive. Not only does excessive algae growth deplete oxygen from the lake, but it can also pose a health risk to humans. In the summer of 1979, a number of people using the lake were infected with algae-related illnesses.

Even though there are no State standards for phosphorus, the nutrient needs to be reduced to limit the amount and severity of algal blooms. Watershed improvements have included a mix of agricultural and urban BMPs and stream bank/shoreline stabilization installed at 49 locations. Lake monitoring has been occurring on a regular basis for nearly three decades. Total phosphorous has been trending downward since the early 1980's; in fact the seasonal mean hypolimnetic phosphorus level was reduced by 62% between 1980 and 2006.



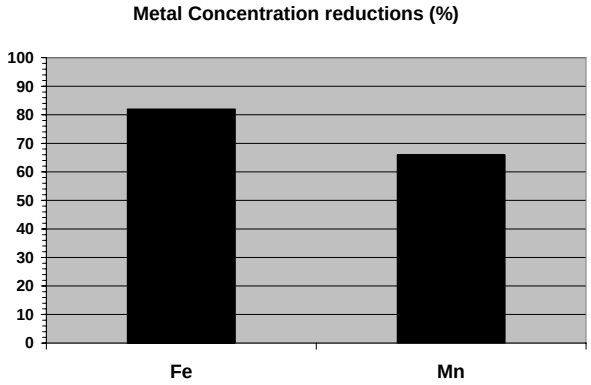
Another indicator of beneficial results is that the depth of transparency has been improving since regular monitoring of the lake began. In 1980 more than 80% of transparency depth readings were less than two meters, by 2006 only 20% were two meters or less. It is anticipated that

through the implementation of additional BMPs in the Lake Wallenpaupack watershed, algae blooms will become less frequent and less severe and the overall health of the lake will continue to improve.

Laurel Run – Indiana County

Laurel Run is a small tributary of Blacklick Creek which flows through southern Indiana County on its way to the Conemaugh River. Laurel Run was placed on the State's 303(d) "List of Impaired Waters" in 1996. The source of impairment is Abandoned Mine Drainage (AMD), and the causes are metals and pH.

The Blacklick Creek Watershed Association (BCWA) was formed in 1993 and has 150 members. They have completed a number of projects throughout the watershed, working with a variety of partners including DEP, PA Fish & Boat Commission, Indiana and Cambria County Conservation Districts, and the PA Game Commission.

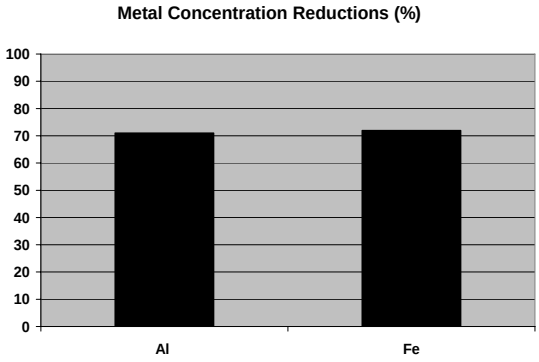


BCWA utilized grants from DEP's Bureau of Abandoned Mine Reclamation (BAMR) in 2001 and 2005 to fund AMD remediation projects in the Laurel Run watershed. The projects included filling of highwalls, construction of Vertical Flow Reactors (VFR's) with sulfate reducing bacteria, settling ponds and a wetland. Alkaline coal ash from the Seward Power Station was used to fill the highwall and refuse coal at the site was then trucked back to burn at the power plant. In addition to helping reduce metal loads and increase pH in Laurel Run, it also removes the safety hazard of a 60 foot highwall that was nearly 300 feet long.

Monitoring Laurel Run below the projects has demonstrated positive results from BCWA's reclamation efforts. The stream experienced an 82% reduction of Iron and 66% reduction of Manganese from its 2005 average to that of 2008, while the pH rose slightly from 6.45 to 6.70. Aluminum loads didn't exceed allowable limits since the beginning of stream sampling below the treatment systems. The BCWA continues working to improve the quality of Blacklick Creek by constructing AMD remediation facilities. As water quality improves in the smaller tributaries, such as Laurel Run, it will continue to improve the water quality in Blacklick Creek.

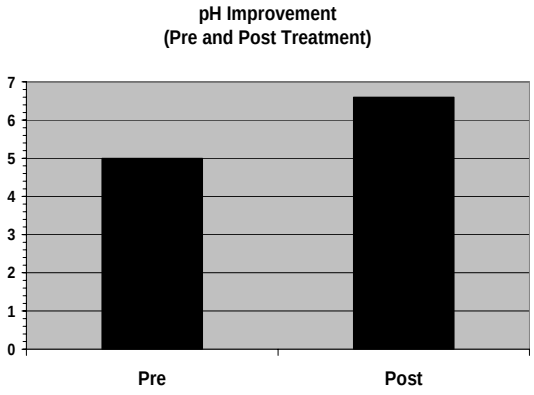
Little Toby Creek – Elk and Jefferson Counties

Little Toby Creek flows through Elk and Jefferson County, before turning north and emptying into the Clarion River in Elk County. This area has been subject to deep mines since the early 1900's and surface mines since the 1950's. The effect of these mining activities has been extensive impairment of the stream by acidic Abandoned Mine Drainage (AMD).



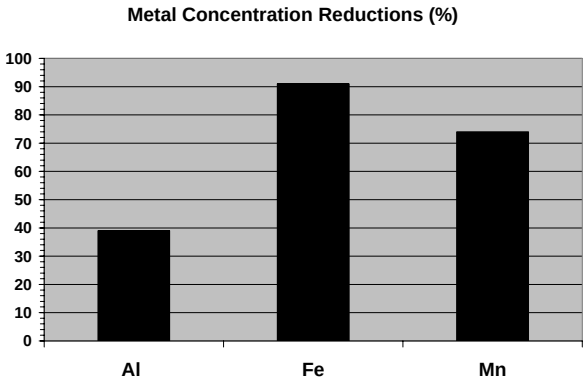
The Toby Creek Watershed Association was formed over 30 years ago to organize remediation work. Their efforts have resulted in construction of more than a dozen treatment systems since 1996 throughout the watershed. A number of AMD sources have been cleaned up in the watershed, utilizing a variety of funding sources including 319, Growing Greener, Project Scarlift and NRCS P.L. 566 funds.

One of the most significant impacts to Little Toby Creek was caused by the Kyler Run deep mine discharge. In November 2002, the Kyler Run Treatment System was constructed. This discharge was the last major AMD source to Little Toby Creek. The treatment project included construction of Successive Alkaline Producing Systems (SAPS), anoxic limestone drains, settling basins and wetlands, which cover an area of approximately six acres.



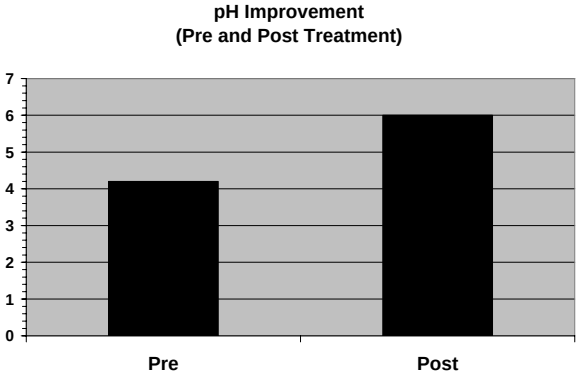
Samples of the main stem of Little Toby Creek downstream of the Kyler Run tributary showed a 71% decrease in aluminum and 72% decrease in iron shortly after completion of the Kyler Run Treatment System in 2003. Also, the pH has risen from 5.0 in 2003 to 6.6 in July, 2005. It is anticipated that the stream will soon be de-listed for the AMD impacts that have been addressed.

Middle Branch/Two Mile Run – Clinton County



The Middle Branch flows south to Two Mile Run, then Kettle Creek, which empties into the West Branch of the Susquehanna River west of Renovo in Clinton County. This heavily forested north central part of the state has a history of coal mining which was not always adequately reclaimed after completing the resource extraction, resulting in degraded streams. The Middle Branch was placed on the State's 303(d) "List of Impaired Waters" in 1996. The source of impairment is Abandoned Mine Drainage (AMD), and the cause is metals. A TMDL was developed for the Two Mile Run watershed and its tributaries, including Middle Branch in 2001.

The Kettle Creek Watershed Association (KCWA) and Trout Unlimited (TU) began a partnership in 1998 to combine restoration efforts for the Kettle Creek Watershed. One of their main goals is to restore the lower part of the watershed to the condition of the upper part of the watershed, which has not been subject to the effects of AMD. Additional partners have included the DEP-BAMR, DCNR Bureau of Forestry, Department of Energy National Energy Technology Lab, and Hedin Environmental as well as others. Work has been occurring according to the first Lower Kettle Creek Restoration Plan that was prepared by Hedin Environmental.

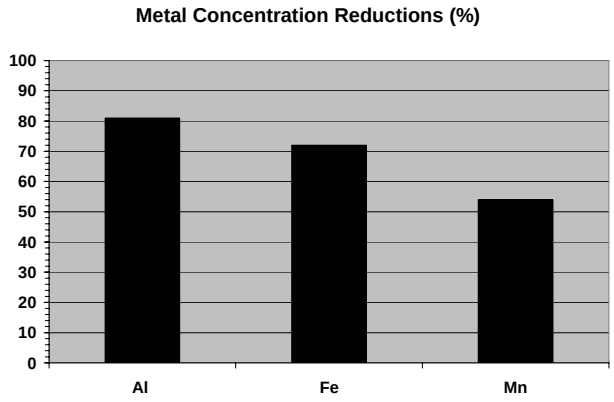


DEP-BAMR designed and constructed a passive treatment system in 2000 to begin treating AMD in the Middle Branch watershed. KCWA and TU monitored the effluent, and after nearly two years it became clear that the effectiveness of the system was decreasing. KCWA and TU conducted an "autopsy" of the system in 2004 with Growing Greener funds to assess the problem. It was determined that water was short circuiting through the system so it needed to be retained longer for the treatment to be more effective. Also, excessive flows into the system needed to be controlled. Again, with funds provided primarily from Growing Greener, changes were made and the treatment is more successful than before the upgrades. The passive treatment system consists of a collection and distribution system, Vertical Flow Ponds (VFPs), a settling pond, and an aerobic wetland.

Monitoring results from near the mouth of the Middle Branch have yielded positive results. The average Iron level before the treatment was constructed was 0.23 milligrams per liter (mg/l), Aluminum was 4.91 mg/l and Manganese was 1.63 mg/l. The average pH was 4.20. All but the Iron levels were exceeding state standards. Post treatment monitoring shows improvements across the board. Iron has been reduced to 0.14 mg/l, Aluminum to 0.45 mg/l and Manganese to 0.42 mg/l. The pH has risen to an average of 5.98. All parameters met state standards in 2007 except pH, which is only 0.02 below the threshold of 6.0.

Mill Creek/Clarion River – Jefferson and Clarion Counties

Mill Creek flows into Clarion County from Jefferson County before emptying into the Clarion River. The Mill Creek watershed has been subject to mining activities since the 1800's, which created a legacy of degraded water quality from Abandoned Mine Drainage (AMD) with high levels of metals.

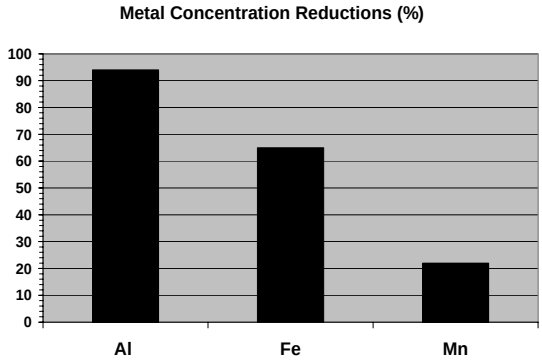


In the early 1980's, under the direction of DEP Bureau of Abandoned Mine Reclamation (BAMR), a study was completed that identified 42 problem areas that were contributing AMD to the watershed. A variety of funding sources, including 319 and Growing Greener were utilized to construct passive treatment systems and land reclamation projects. The Mill Creek Coalition, which consists of a number of conservation organizations from Clarion and Jefferson Counties, was formed in 1990.

Reclamation projects were constructed as early as the 1980's when aerobic wetlands, Anoxic Limestone Drains (ALD), soda ash and caustic soda systems were built. Additional treatment systems were constructed in the 1990's which included aerobic wetlands, Vertical Flow Ponds, Successive Alkalinity Producing Systems (SAPS) and settling ponds. Upgrades to several treatment systems were completed in 2002. The Mill Creek Coalition received a Growing Grant in 2004 to fund the development of a comprehensive Operation, Maintenance & Replacement (OM&R) Plan. A Growing Greener Grant was also been used to implement an oil and gas well plugging project on Jones Run, a tributary of Mill Creek a few miles upstream from the Clarion River.

Division of Water Quality Standards staff sampled Mill Creek last summer and has recommended a segment above the T562 Bridge to be de-listed for impairments resulting from AMD. Treatment projects in tributaries to Mill Creek including Douglas Run, Jones Run and Little Mill Creek have contributed to water quality improvements. Samples of Mill Creek below the confluence with Douglas Run since 2001 show that Iron has been reduced 72%, Manganese 54% and Aluminum 81%.

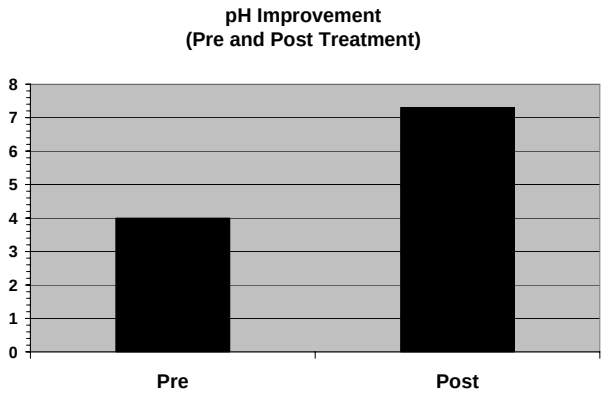
Seaton Creek – Butler County



Seaton Creek flows through northern Butler County and eventually empties into Slippery Rock Creek. The Seaton Creek watershed covers an area of approximately ten square miles. The area was subject to deep mining from the early 1900's until the 1930's. In the 1940's strip mining and removal of crop coal left over from the deep mining began. More than four miles of the stream are included on the state's 303 (d) list for low pH and elevated metals caused by abandoned mine drainage (AMD). One active mining permit exists in the watershed. All other mining activities have ceased and are considered non-point sources.

A number of AMD treatment facilities have been constructed in the headwaters of Seaton Creek since 1998. Mine spoil and remaining disturbed areas have been re-graded, mixed with alkaline material and stabilized with vegetation. Passive treatment systems have been constructed which include vertical flow ponds, settling ponds, constructed wetlands and limestone flow beds. Most of the work was completed between 2000 and 2003.

Public and private partnerships have utilized a variety of funding sources to build these projects, including EPA 319, Growing Greener Grants and reclamation agreements.



Samples from near the mouth of Seaton Creek indicate that pH has been rising and metal loading has been reduced. In 1998, before any remediation had been done in the watershed, the pH was 4.0. By 2004 the pH had gone up to 7.3. During the same time period, Aluminum was reduced 94%, Iron 65% and Manganese 22%. Prior to construction of the treatment systems and land reclamation in 1998, macroinvertebrates and fish could not be found in Seaton Creek. Researchers working in the stream began to see the return of macroinvertebrates and fish in 2003 at McJunkin Road. The stream is likely to be de-listed soon as a result of increased pH and reduced iron and aluminum loads.

Semiconon Run – Butler County

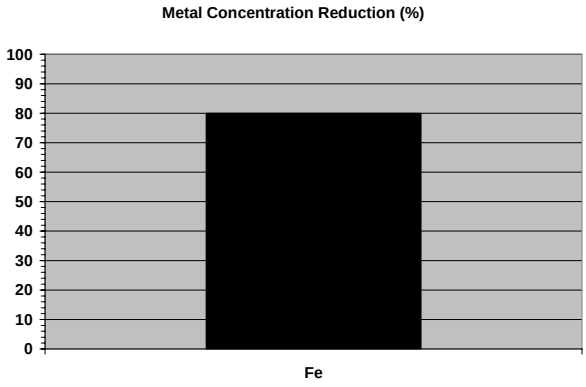
Semiconon Run flows south from northern Butler County to the Connoquenessing Creek and eventually empties in to the Allegheny River northeast of Pittsburgh. The Semiconon Run Watershed was subject to coal mining activities from the 1870's to the 1970's. In 2002, Semiconon Run was listed on the State's 303(d) "List of Impaired Waters". The source of impairment is Abandoned Mine Drainage (AMD), and the cause is metals, principally iron.

In 2002 Camp Lutherlyn, the project sponsor, obtained a $60,000 Growing Greener Grant to design and construct a passive treatment system. The project includes walking paths and a parking area because, in addition to treating AMD, the facility is part of the Lutherlyn Environmental Education Program. As many as 8,000 people a year have had the opportunity to learn about the negative impacts of AMD and how polluted water is cleaned up.

Construction on the treatment system began in 2003 and was completed in 2004. The AMD is collected and directed to a settling pond, then to a wetland where it is treated by vegetation and organic matter. The flow is then discharged through a limestone spillway before entering Semiconon Run.

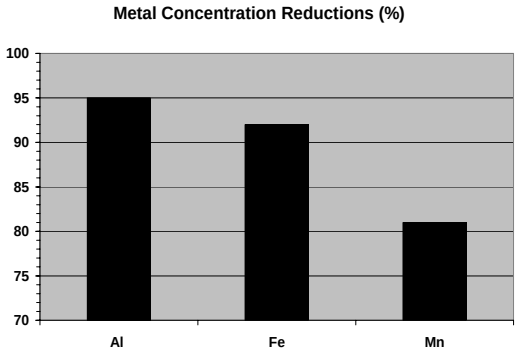
Prior to construction of the passive treatment system, the discharge flowed to a small channel that emptied directly into Semiconon Run. This conveyed a significant iron load directly to the stream.

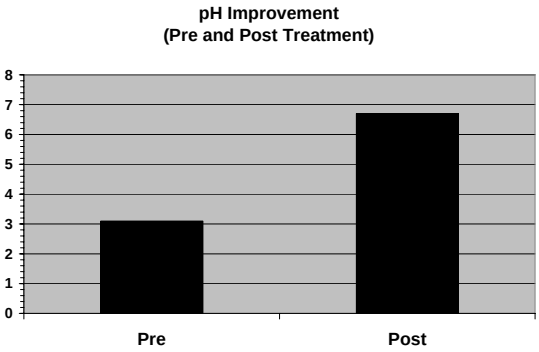
Sample data indicate that the average Iron load in Semiconon Run between 1983 and 2002 was 0.80 mg/l upstream of the mine discharge, 8.54 mg/l at the mine discharge and 3.54 mg/l downstream of the mine discharge. Samples taken by DEP's Water Quality and Assessment Division near the mouth of Semiconon Run in the summer of 2007 had an average 0.687 mg/l. The iron level has dropped enough that the stream will be removed from the Impaired Waters List when it is next published, in April, 2008.



Shreves Run – Bedford County

Shreves Run flows through Broadtop Township in northeastern Bedford County to Six Mile Run, which empties into the Raystown Branch of the Juniata River. Shreves Run has been impacted by years of deep and surface coal mining activities. Deep mining activities began in the 1800's and continued through the early 1980's. Surface mining activities were extensive from the 1930's through the 1980's. As a result, Shreves Run has been impacted from Abandoned Mine Drainage (AMD), which contributed to impairments identified in the Six Mile Run TMDL.





Broadtop Township has initiated water quality improvement projects such as AMD restoration, municipal sewage cleanup and curtailing illegal garbage dumping. More than 20 years ago the Township joined neighboring Coaldale Borough to form the Six Mile Run Area Watershed Committee. Early on they concentrated on improving sewage discharges and 537 Plan development, later AMD issues became the focus.

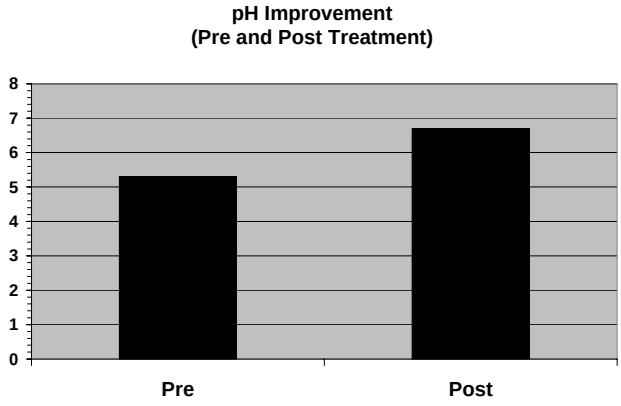
The most significant AMD sources were targeted for treatment with funding from Growing Greener in 2003 and 319 in 2006. A total of eight deep mine discharges concentrated in two separate locations were directed into two different treatment systems. A total of ten limestone ponds, seven settling ponds and two constructed wetlands were built between the two projects.

Samples of Shreves Run obtained through a cooperative effort between Broadtop Township and Tussey Mountain High School before and after construction show significant reductions of metals as well as increasing pH. In 2000, before any AMD remediation had been done the pH was 3.07. By 2007 it had risen to 6.76. During the same period, Aluminum was reduced 95%, Iron 92% and Manganese 81%.These improvements make Shreves Run a potential candidate for reassessment next summer and also will help Six Mile Run meet the TMDL.

Step Run – Clarion County

Step Run is a small headwater stream in northern Clarion County that flows into Licking Creek and eventually to the Clarion River through several tributaries. Oil and gas drilling in this part of northwestern Pennsylvania began in the early 1900's. Abandoned oil and gas wells have been impacting the streams in northern Clarion County for the past 50 years by lowering pH. DEP has estimated that there are at least 200 abandoned oil and gas wells in Clarion County. In 1996, Step Run was listed on the State's 303(d) "List of Impaired Waters". The source of impairment was Abandoned Mine Drainage (AMD) and the cause was acidic pH.

Two Growing Greener Grants and a DEP Environmental Alliance for Senior Involvement Grant were awarded from 2001 through 2004 to address the impaired water quality. Organizations involved included the Clarion Conservation District, Alliance for Wetlands and Wildlife, Hedin Environmental and the Lucinda Watershed Authority. Funds were used for watershed assessment, stream monitoring and eventually well plugging. The Licking Creek Watershed Assessment stated that plugging as many abandoned oil and gas wells as possible would raise the pH of the impaired streams, including Step Run.

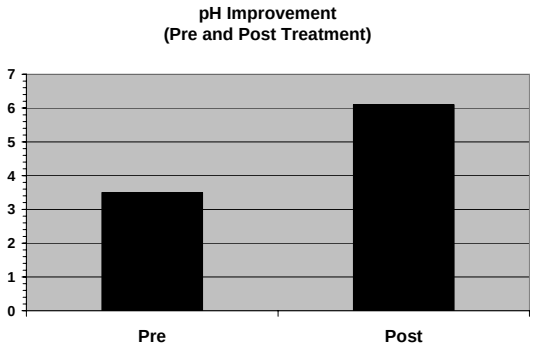


Water samples taken in 2004, before any wells were plugged in Step Run, indicated the average pH was 5.31. Four abandoned oil and gas wells were plugged later that year. Samples taken by DEP's Water Quality and Assessment Division in the summer of 2007 had an average pH of 6.72. The pH in Step Run has improved enough that the stream is slated to be removed from the Impaired Waters List when it is next published, in April, 2008.

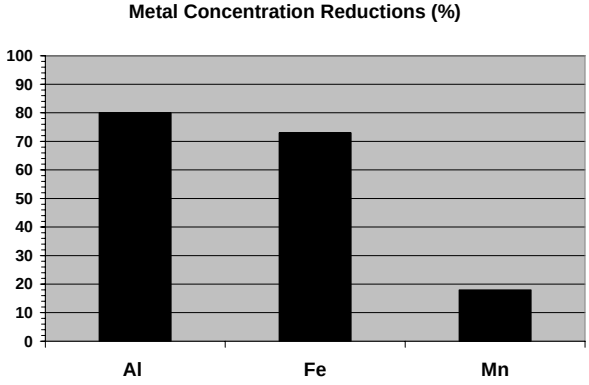
Wells Creek – Somerset County

The headwaters of Wells Creek begin northeast of Somerset, PA. The stream traverses an area of mixed agriculture and old, reforested coal mines before emptying into the Stonyfork River. Deep mining activities have left an impact of Abandoned Mine Drainage (AMD) in the watershed.

In 1999, the Wells Creek Watershed Association (WCWA) was formed. At this time the stream supported very little aquatic life. The WCWA diligently pursued and acquired funds from sources including Growing Greener, Office of Surface Mining (OSM) and Western Pennsylvania Coalition for Abandoned Mine Reclamation (WPCAMR), as well as a number of other public organizations and private companies to ensure the goal of AMD cleanup would be achieved. In 2004 the WCWA was recipient of the 2004 Governor's Award for Environmental Excellence.



Cleanup of AMD has been concentrated at two locations with three treatment systems. The first is located in the watershed's headwaters and is known as the Onstead Project, where a Successive Alkalinity Producing System (SAPS) has been constructed. Farther down the watershed is the Adams Project, which includes an Anoxic Limestone Drain (ALD) and a vertical flow SAPS.



In 2003, prior to the construction of the systems, only one macroinvertebrate taxon was found in Wells Creek below at a sampling location below both projects. After the treatment systems had been constructed, ten taxa were collected at the same location in 2004. Sampling results indicate improvements in stream chemistry as well. At the same location, pH of the treated water has risen from 3.5 to 6.1. Metals are dropping significantly. Aluminum has been reduced 80%, Iron 73%, and Manganese 18%. Only Manganese remains above allowable parameters, by 0.6 mg/l., but it is anticipated that continued treatment will reduce it to acceptable levels. Two additional AMD discharges are being targeted for future projects, as the WCWA works to return Wells Creek to the high quality fishery it once was.

WCWA stocked Wells Creek for the third consecutive year in 2007 and plans to continue, with the hope of one day achieving a reproducing trout population.

APPENDICES

Appendix A - Nonpoint Source Liaison Work Group Partners

Appendix B – Section 319 Project Status Matrix

Appendix C – Section 319 NPS Project Load Reduction Estimates

Appendix D – 2008 Abandoned Mine Land and Abandoned Mine Drainage Reclamation Projects

Appendix A - Nonpoint Source Liaison Work Group Partners

Many different local conservation organizations and agencies have participated in Pa.'s NPS Liaison Work Group meetings. These organizations and agencies have provided input to Pennsylvania's NPS Management Program Plan-2008 Update. The NPS Liaison Work Group membership has included representatives from the following organizations:

- Chesapeake Bay Commission – Pennsylvania Office
- County Conservation Districts
- Eastern Pennsylvania Coalition for Abandoned Mine Reclamation
- Western Pennsylvania Coalition for Abandoned Mine Reclamation
- Pennsylvania Association of Conservation Districts
- Pennsylvania Farm Bureau
- Pennsylvania League of Women Voters, Water Resources Education Network
- Pennsylvania Department of Agriculture
- Pennsylvania Department of Conservation and Natural Resources
- Pennsylvania Department of Community and Economic Development
- Pennsylvania Department of Environmental Protection
- Pennsylvania Department of Transportation
- Pennsylvania Fish and Boat Commission
- Pennsylvania Forest Stewardship Program
- Pennsylvania Forest Products Association
- Pennsylvania Game Commission
- State Conservation Commission
- Stroud Water Research Center
- Susquehanna River Basin Commission
- The Pennsylvania State University, College of Agricultural Sciences
- U.S. Environmental Protection Agency, Region III Office
- U.S. Department of Agriculture, Farm Services Agency
- U.S. Department of Agriculture, Natural Resources Conservation Service
- U.S. Department of the Interior, Office of Surface Mining
- U.S. Department of the Interior, United States Geological Survey
- Villanova University
- Wenger Feeds, Inc.
- Western Pennsylvania Conservancy

Appendix B - Section 319 Project Status Matrices

The EPA requires state NPS programs to include a matrix (or matrices) summarizing grant and project milestone progress in states' NPS Program Annual Reports. Appendix B provides a summary of Section 319 grant and project status. The grants that were in an active status during the FFY2008 reporting period include the FFY2005 through 2008 grants. These grants and their projects' status as of December 31, 2008 are included.

Pennsylvania's NPS Management Program has provided this information to the EPA Region III to meet the Section 319 Semi-Annual Status Report requirement for the July through December 2008 reporting period.

FFY2005 Section 319 Project Status Matrix

Semi-Annual Performance Report - July through December 2008 **FFY2005 Section 319 Grant - October 1, 2004 to September 30, 2008**

The EPA awarded this grant on September 7, 2005.

The grant closed September 30, 2008.

Project Number	Project Title (Project Sponsor)	Current Status
Status = COMPLETED		
2501	Conservation District Mining Program (WPCAMR)	
2502	Conservation District Mining Program (EPCAMR)	
2503	DEP NPS Program Staff (Pa DEP)	Completed
2504	Citizens Volunteer Monitoring Program (Pa. DEP)	
2505	Statewide NPS Education Office (PACD)	Completed.
2506	Watershed Education for Pollution Prevention (Pa. League of Women Voters)	Completed.
2507	TMDL Watershed Restoration Plans - Phase III (Pa. DEP)	Five WIPs were completed.
2508	Statewide Lake Water Quality Assessments (Pa. DEP)	Final report completed along with water monitoring
2509	Urban Storm Water BMP National Monitoring Program (Villanova University)	Completed.
2510	Riparian Forest Buffer National Monitoring Program (Stroud Water Research Center)	
2511	Swatara Creek National Monitoring Program (Schuylkill County CD)	
2512	Brewster Hollow AMD Remediation (Broad Top Township)	Construction complete. Monitoring continues.
2513	Six Mile Run SXO-D2 AMD Remediation (Broad Top Township)	Final report completed along with water monitoring
2514	Remediation of Tracey Airhole AMD Discharge (Schuylkill County CD)	Construction complete.
2515	Klondike Mine AMD Treatment Construction (Clearfield Creek Watershed Association)	Construction complete.
2516	Arnot No. 2 Mine AMD Treatment System (Babb Creek Watershed Association, Inc.)	Repairs to system complete.
2517	Hubler Run I AMD Treatment System (Emigh Run/Lakeside Watershed Association)	Project bid selection made.
2518	Benedict Mine AMD Treatment (Huntingdon County CD)	Construction complete. Final invoice being processed.
2519	Old Never Sweat Mine AMD Treatment (Huntingdon County CD)	Construction complete. Final invoice being processed.
2521	Passive Alkalinity SGL#67 (Shoup Run Watershed Association)	Construction complete. Final invoice being processed.
2523	Corbettown Constructed Wetlands (Jefferson County CD)	Construction complete. Monitoring continues.
2524	Blacks Creek: BC16 Remediation (Stream Restoration Inc.)	Project closed out. Project will be completed under the FFY06 grant as Project
2525	Bolich Wetland Project (Mahanoy Creek Watershed Association)	
2526	Mifflin County Farm BMPs (Mifflin County Conservation District)	Completed.
2527	Mifflin County Farm BMPs (Mifflin County Conservation District)	Completed.

2528	Conestoga River Watershed Ag BMPs (Lancaster County Conservation District)	Completed.
2529	Sustaining the Mill Creek Farm Community (Izaak Walton League of America)	Completed.
2530	Spring Run Agricultural BMPs (Fulton County Conservation District)	
2531	Eagle Scout Pasture Improvement (Bucks County CD)	
2532	East Branch Codorus Creek Restoration Phase V (Izaak Walton League of America)	Survey & design completed, now 27-20.

Semi-Annual Performance Report - July through December 2008 FFY2005 Section 319 Grant - October 1, 2004 to September 30, 2008

The EPA awarded this grant on September 7, 2005.

The grant closed September 30, 2008.

Project Number	**Project Title (Project Sponsor)**	**Current Status**
Status = COMPLETED		
2533	Millers Run Stream Restoration Design (Little Conestoga Watershed Alliance)	
2534	Wissahickon Creek Shade Buffer (Wissahickon Valley Watershed Association)	Completed.
2535	Monastery Stables Runoff Controls (Fairmount Park Commission)	
2536	BMP Priorities and Watershed Protection for Harveys Lake (Harveys Lake Borough)	Project closed out. Project will be completed under FFY06 grant as Project #26
2537	Durham Ridge Wetland Phase I (Plumstead Township)	Completed.
2540	Magnolia Lake Shoreline Stabilization (Bucks County CD)	Completed.
2542	South / East Branch Codorus Creek Monitoring / Maintenance (Izaak Walton League of America)	
2544	Portable Timber Bridges (Wayne County Conservation District)	
2545	BMP Implementation to Address TMDLs (Pa DEP)	Additional funds for 2545 A.
2545 A	Audenreid Tunnel AMD Remediation (Schuylkill County CD)	Provided additional funds for project.
2545 B	**E. Br. Codorus Creek Watershed Restoration - Spring Valley Park (IWLA)**	**Construction completed. Final Report in GRTS.**
2545 C	Fall Brook Collection System (Tioga County Conservation District)	Completed.
2545 D	Miller Run 1 and 2 AMD Remediation (Huntingdon County Conservation District)	Completed.
Status = BEHIND SCHEDULE		
	None.	
Status = DISCONTINUED		
2520	Presto-Sygan AMD Remediation (Stream Restoration, Inc.)	Removed.
2522	North Fork Montour Run Restoration Phase I (Montour Run WA)	Removed.
2538	Brockway Natural Channel Design & Restoration (Jefferson County CD)	Removed.

2539	West Mill Creek Park Restoration Phase II (Lower Merion Twsp.)	Removed.
2541	Trout Run Mushroom Wetlands (Chester County CD)	Removed.
2543	Villanova University Infiltration Pit Evaluation & Restoration (Villanova U)	Removed.

Status = CHANGES TO PROJECT SCOPE OR TIME FRAME

None.

Status = ON SCHEDULE

Base Funded Projects

All projects completed.

Semi-Annual Performance Report - July through December 2008 **FFY2005 Section 319 Grant - October 1, 2004 to September 30, 2008**

The EPA awarded this grant on September 7, 2005.

The grant closed September 30, 2008.

Project Number	**Project Title (Project Sponsor)**	**Current Status**

Status = ON SCHEDULE

Incremental-Funded Implementation Projects

All projects completed.

Base-Funded Implementation Projects

All projects completed.

DELIVERABLES

2505	Statewide NPS Education Office (PACD)	Final report.
2506	Watershed Education for Pollution Prevention (Pa. League of Women Voters)	Final report.
2507	TMDL Watershed Restoration Plans - Phase III (Pa. DEP)	Five WIPs completed.
2509	Urban Storm Water BMP National Monitoring Program (Villanova University)	Final report.
2512	Brewster Hollow AMD Remediation (Broad Top Township)	Final report.
2513	Six Mile Run SXO-D2 AMD Remediation (Broad Top Township)	Final report.
2514	Remediation of Tracey Airhole AMD Discharge (Schuylkill County CD)	Final report.
2515	Klondike Mine AMD Treatment Construction (Clearfield Creek Watershed Association)	Final report.
2516	Arnot No. 2 Mine AMD Treatment System (Babb Creek Watershed Association, Inc.)	Final report.
2517	Hubler Run I AMD Treatment System (Emigh Run/Lakeside Watershed Association)	Final report.

2518	Benedict Mine AMD Treatment (Huntingdon County CD)	Final report.
2519	Old Never Sweat Mine AMD Treatment (Huntingdon County CD)	Final report.
2521	Passive Alkalinity SGL#67 (Shoup Run Watershed Association)	Final report.
2523	Corbettown Constructed Wetlands (Jefferson County CD)	Final report.
2526	Mifflin County Farm BMPs (Mifflin County Conservation District)	Final report.
2527	Mifflin County Farm BMPs (Mifflin County Conservation District)	Final report.
2528	Conestoga River Watershed Ag BMPs (Lancaster County Conservation District)	Final report.
2529	Sustaining the Mill Creek Farm Community (Izaak Walton League of America)	Final report.
2534	Wissahickon Creek Shade Buffer (Wissahickon Valley Watershed Association)	Final report.
2537	Durham Ridge Wetland Phase I (Plumstead Township	Final report.
2545	BMP Implementation to Address TMDLs (Pa DEP)	2545 B, 2545 C, 2545 D completed.
2545 B	**E. Br. Codorus Creek Watershed Restoration - Spring Valley Park (IWLA)**	**Construction completed. Final report.**
2545 C	Fall Brook Collection System (Tioga County Conservation District)	Final report.

Semi-Annual Performance Report - July through December 2008 **FFY2005 Section 319 Grant - October 1, 2004 to September 30, 2008**

The EPA awarded this grant on September 7, 2005.

The grant closed September 30, 2008.

Project Number	**Project Title (Project Sponsor)**	**Current Status**
DELIVERABLES		
2545 D	Miller Run 1 and 2 AMD Remediation (Huntingdon County Conservation District)	Final report.

FFY2006 Project Status Matrix

Semi-Annual Performance Report - July through December 2008 **FFY2006 Section 319 Grant - October 1, 2005 to September 30, 2009**

The EPA awarded this grant on September 6, 2006.

A time extension to the grant was approved through September 30, 2009.

Project Number	Project Title (Project Sponsor)	Current Status
Status = COMPLETED		
2601	Conservation District Mining Program (WPCAMR)	Final report received.
2602	Conservation District Mining Program (EPCAMR)	Final report received.
2604	Citizen Volunteer Monitoring Program (Pa. CVMP)	
2605	Statewide NPS Education Office (PACD)	Final report received.
2606	Watershed Education for Pollution Prevention VIII (Pa. League of Women Voters)	Final report received.
2608	Statewide Lake Water Quality Assessments (Pa. DEP)	Final report received.
2609	Urban Storm Water BMP National Monitoring Program (Villanova University)	Final report received.
2611	Swatara Creek National Monitoring Program (Schuylkill County Conservation District)	Funding continued through FFY2007 grant.
2612	**Six Mile Run SX0-D6 AMD Remediation (Broad Top Township)**	**Final report received.**
2615	**Shreves Run Regional AMD Remediation (Broad Top Township)**	**Final report received.**
2616	**Six Mile Run SX2-D5 AMD Remediation (Broad Top Township)**	**Final report received.**
2619	Limestone Supplement for Audenreid Mine Tunnel AMD Remediation (Schuylkill County CD)	Final report received.
2625	Pequea Creek Restoration Phase II Construction (Paradise Sportsman Association)	Final report received.
2626	Durham Ridge Wetland - Phase II (Plumstead Township)	Final report received.
2627	**Mahoning Creek Stream Channel Stabilization (Montour County CD)**	**Final report received.**
Status = BEHIND SCHEDULE		
	National Monitoring Program Project	
2610	Riparian Forest Buffer Monitoring Program (Stroud Water Research Center)	Final report is still being worked on. Grant agreement ended 12/31/2007.
Status = DISCONTINUED		
2620	Oneida/Green Mountain Discharges AMD Treatment (Schuylkill County CD)	Removed.
2623	Godfrey Pasture Stream Restoration (Izaak Walton League of America)	Removed.
2624	McClelland Pasture Stream Restoration (Izaak Walton League of America)	Removed.

Status = CHANGES TO PROJECT SCOPE OR TIME FRAME		
2628	Energy Resource Center - Green Building Project (SEDA-Council of Governments)	One year time extension approved.

Semi-Annual Performance Report - July through December 2008 **FFY2006 Section 319 Grant - October 1, 2005 to September 30, 2009**

The EPA awarded this grant on September 6, 2006.

A time extension to the grant was approved through September 30, 2009.

Project Number	**Project Title (Project Sponsor)**	**Current Status**
Status = ON SCHEDULE		
	Base Funded Projects	
2603	NPS Program-Bureau of Watershed Management/Regional Offices (Pa. DEP)	
2607	TMDL Watershed Restoration Plans - Phase III (Pa. DEP)	One WIP completed. Three others being developed.
	Incremental-Funded Implementation Projects	
	AMD	
2613	Six Mile Run SX3-D9 AMD Remediation (Broad Top Township)	Construction is complete.
2614	Six Mile Run Discharge SX2-D6, D7, D8 AMD Remediation (Broad Top Township)	Project on hold; may transfer to another project.
2617	Hubler Run 2 AMD Treatment System Construction (Emigh Run/Lakeside Watershed Assn.)	Final design is complete.
2618	Hartman Run Alkalinity Addition Project	Construction is complete. Addition of limestone sand continues.
2621	Hartshorn Run Assessment and Restoration Plan (Clearfield County CD)	Assessment completed and WIP being written.
2630 A	Sandy Run AMD Remediation (Broadtop Township)	Final design is being worked on.
2630 B	Six Mile Run AMD - SX0-D8 (Broadtop Township)	Water quality and flow sampling is continuing
2630 G	Bear Creek Watershed AMD Remediation Ph. I (Dauphin County CD)	Project is moving ahead; some delays experienced.
2630 H	Blacks Creek AMD Remediation: BC16 (Stream Restoration Inc.)	Construction is complete
	Other Projects	
2629	Francis Slocum Lake / Abrahams Creek Assessment (Luzerne County CD)	WIP being developed. Contractor committed to completion by 9/30/2009.
2630	BMP Implementation to Address TMDLs - Phase I and II (Multiple)	Projects are being implemented.
2630 C	Upper Kish Creek Watershed Restoration (Mifflin County CD)	Projects are ongoing.
2630 D	S. Br. Codorus Creek Watershed Restoration-LaRue Mill (IWLA)	Waiting for Final Report Edits. Contract ended 09/30/2008.

2630 E	E. Br. Codorus Creek Watershed Restoration-Godfrey Pasture (IWLA)	Construction is nearly completed.
2630 F	Oil Creek Watershed Restoration (York County CD)	Construction is complete, awaiting Final Report.
2631	BMP Implementation to Address TMDLs - Phase III (Combined with Project 2630)	
	Base-Funded Implementation Projects	
	Agriculture	
2622	Agriculture BMP Implementation Program - Phase II (Centre County CD)	Projects being completed. Time extension through 09/30/2009.

Semi-Annual Performance Report - July through December 2008 **FFY2006 Section 319 Grant - October 1, 2005 to September 30, 2009**

The EPA awarded this grant on September 6, 2006.

A time extension to the grant was approved through September 30, 2009.

Project Number	Project Title (Project Sponsor)	Current Status
DELIVERABLES		
2605	Statewide NPS Education Office (PACD)	Final report.
2606	Watershed Education for Pollution Prevention VIII (Pa. League of Women Voters)	Final report.
2607	TMDL Watershed Restoration Plans - Phase III (Pa. DEP)	One WIP completed.
2609	Urban Storm Water BMP National Monitoring Program (Villanova University)	Final report.
2612	**Six Mile Run SX0-D6 AMD Remediation (Broad Top Township)**	**Final report.**
2615	**Shreves Run Regional AMD Remediation (Broad Top Township)**	**Final report.**
2616	**Six Mile Run SX2-D5 AMD Remediation (Broad Top Township)**	**Final report.**
2626	Durham Ridge Wetland - Phase II (Plumstead Township)	Final report.
2627	**Mahoning Creek Stream Channel Stabilization (Montour County CD)**	**Final report.**

FFY2007 Project Status Matrix

Semi-Annual Performance Report - July through December 2008 **FFY2007 Section 319 Grant - October 1, 2006 to September 30, 2010**

EPA Region III awarded the grant on September 19, 2007.

The current grant closing date is September 30, 2010.

Project Number	Project Title (Project Sponsor)	Current Status
Status = COMPLETED		
2701	**Conservation District Mining Program (WPCAMR)**	**Final report and other documents received.**
2702	**Conservation District Mining Program (EPCAMR)**	**Final report received.**
2704	Citizen Volunteer Monitoring Program (Pa DEP)	
2705	Statewide NPS Education Office (PACD)	Final report received.
2706	**Watershed Education for Pollution Prevention IX (Pa. League of Women Voters)**	**Final report received.**
2708	Villanova University Stormwater National Monitoring Program (Villanova University)	Final report received.
Status = BEHIND SCHEDULE		
	National Monitoring Program Project	
2709	Swatara Creek National Monitoring Program (Schuylkill County Conservation District)	Awaiting final report. Contract ended 09/30/2008.
Status = DISCONTINUED		
2718	Neumeister Discharge AMD Remediation (Schuylkill Headwaters Association)	Funds transferred to Project 2728.
Status = CHANGES TO PROJECT SCOPE OR TIME FRAME		
	None.	
Status = ON SCHEDULE		
	Base Funded Projects	
2703	Nonpoint Source Program-BWM/Regional Offices (Pa. DEP)	
2707	Statewide Lake Water Quality Assessments (Pa. DEP)	Lake monitoring/assessment completed for 2007.
	Incremental-Funded Implementation Projects	
	AMD	
2710	Six Mile Run SX0-D6 AMD Remediation (Broad Top Township)	Construction has started

2711	Six Mile Run Discharge SX0-D7 AMD Remediation (Broad Top Township)	Work on final design continues.
2712	Six Mile Run Discharge SX2-D5 AMD Remediation (Broad Top Township)	Construction is complete. Monitoring is continuing.
2713	Green Garden Road AMD (Huntingdon County Conservation District)	Working on permit issues
2714	Ferris Wheel Revegetation Project (Clearfield Creek Watershed Association)	Reclamation work has started

Semi-Annual Performance Report - July through December 2008 FFY2007 Section 319 Grant - October 1, 2006 to September 30, 2010

EPA Region III awarded the grant on September 19, 2007.

The current grant closing date is September 30, 2010.

Project Number	**Project Title (Project Sponsor)**	**Current Status**
Status = ON SCHEDULE		
	Incremental-Funded Implementation Projects	
	AMD	
2715	Bilger Run BR3.9 AMD Discharge Treatment System (Pike Township)	Construction is complete.
2716	Bear Creek AMD Phase II (Dauphin County Conservation District)	Project is moving ahead; some delays experienced.
2717	Oneida #3 Mine Tunnel Discharge Remediation (Schuylkill County Conservation District)	Working on access issues and all permits are in place
2728	Siver Creek Mine AMD Restoration Project (Schuylkill Headwaters Association)	Working on permitting
	Agriculture	
2719	Conewago Creek Restoration Phase I (Dauphin County Conservation District)	BMP implementation is ongoing.
2723 A	Upper Kish Creek Watershed Restoration (Mifflin County Conservation District)	BMP implementation is ongoing.
	Stormwater/ Urban Runoff/ Stream Restoration	
2720	East Branch Codorus Creek Stream Restoration Phase V (Izaak Walton League of America)	Awaiting completion of final report.
	Other	
2723	BMP Implementation identified in Approved Watershed Implementation Plans (Pa. DEP)	Funds allocated to Project 2723 A.
2727	Watershed Implementation Plans in Priority Watersheds (Pa. DEP)	Two WIPs are being developed.
2727 A	Middle Spring Run WIP (Cumberland County Conservation District)	Plan is being developed.
2727 B	South Branch Plum Creek WIP (Indiana County Conservation District)	Plan is being developed.

	Base-Funded Implementation Projects	
	Stormwater/ Urban Runoff/ Stream Restoration	
2721	Hershey Meadows Stream Restoration Phase I (Tri-County Conewago Creek WA)	Survey and site design completed and submitted for permit approval.
2724	Villanova University Porous Concrete BMP Monitoring Project (Villanova University)	
	Other	
2722	Design/Implementation of In-Lake Stephen Foster Lake Restoration Plan (Bradford County CD)	WIP is approved; project design of in-lake tools ongoing.
2725	TMDL Planning (Pa. DEP)	
2726	Social Marketing (Clearfield County Conservation District)	Work on social marketing plan continues

Semi-Annual Performance Report - July through December 2008 FFY2007 Section 319 Grant - October 1, 2006 to September 30, 2010

EPA Region III awarded the grant on September 19, 2007.

The current grant closing date is September 30, 2010.

Project Number	**Project Title (Project Sponsor)**	**Current Status**
DELIVERABLES		
2701	**Conservation District Mining Program (WPCAMR)**	**Final report and other project documentation.**
2702	**Conservation District Mining Program (EPCAMR)**	**Final report.**
2705	Statewide NPS Education Office (PACD)	Final report.
2706	**Watershed Education for Pollution Prevention IX (Pa. League of Women Voters)**	**Final report.**
2708	Villanova University Stormwater National Monitoring Program (Villanova University)	Final report.

FFY2008 Project Status Matrix

Semi-Annual Performance Report - July through December 2008 **FFY2008 Section 319 Grant - October 1, 2007 to September 30, 2011**

EPA Region III awarded the grant in November 2008.

The current grant closing date is September 30, 2011.

Project Number	Project Title (Project Sponsor)	Current Status
Status = COMPLETED		
2809	**Urban Stormwater BMP Monitoring (Villanova University)**	**Final report received.**
Status = BEHIND SCHEDULE		
2816	Bear Creek Phase II-B (Dauphin County CD)	Project still does not have a final work plan/contract
Status = DISCONTINUED		
2818	Emigh Run ER-13 AMD Treatment Project (Emigh Run/Lakeside Watershed Assoc)	Removed.
2824	Pierceville Run Stream Restoration Project I (Izaak Walton League)	Removed.
2825	Pierceville Run Stream Restoration Project II (Izaak Walton League)	Removed.
Status = CHANGES TO PROJECT SCOPE OR TIME FRAME		
	None.	
Status = ON SCHEDULE		
	Base Funded Projects	
2801	Conservation District Mining Program (WPCAMR)	
2802	Conservation District Mining Program (EPCAMR)	
2803	Nonpoint Source Program-BWM/Regional Offices (Pa. DEP)	
2804	Citizen Volunteer Monitoring Program (Pa. DEP-CVMP)	
2805	Statewide NPS Education Office (PACD)	Mini-grant applications being received.
2806	Watershed Education for Pollution Prevention IX (PA. LWV)	Mini-grant applications being received.
2807	Statewide Lake Water Quality Assessments (Pa. DEP)	Ongoing; sampling complete, data being analyzed
2808	TMDL Planning (Pa DEP, Bureau of Watershed Management)	
	Incremental-Funded Implementation Projects	

	AMD	
2810	Sandy Run SA0-D4 AMD Remediation (Broad Top Township)	Working on final design and permitting
2811	Sandy Run SA0-D5 AMD Remediation (Broad Top Township)	Working on final design and permitting
2812	Sandy Run AMD Conceptual Designs and Estimates (Broad Top Township)	Water quality samples are being taken on AMD points
2813	KORB Design and Reclamation Project (Pike Township)	Working on final design and permitting

Semi-Annual Performance Report - July through December 2008 FFY2008 Section 319 Grant - October 1, 2007 to September 30, 2011

EPA Region III awarded the grant in November 2008.

The current grant closing date is September 30, 2011.

Project Number	**Project Title (Project Sponsor)**	**Current Status**
Status = ON SCHEDULE		
	Incremental-Funded Implementation Projects	
	AMD	
2814	Montgomery Run Watershed AMD Discharge 52-A (Lawrence Township)	Working on final design and permitting
2815	Hubler Run 3 AMD Treatment System Study (Emigh Run/Lakeside Watershed Assoc)	Water quality samples are being taken on AMD points
2817	West Ferris Wheel AMD Treatment Design (Clearfield Creek Watershed Assoc)	Working on final design and permitting
	Agriculture	
2820	Buffalo Creek Watershed Restoration (Union County CD)	WIP completed. Contract agreement executed.
2821	Conowingo Creek Watershed Pilot Restoration Program (Donegal Chapter TU)	Field work, survey and design are ongoing.
	Stormwater / Urban Runoff	
2822	Little Pine Creek Stream Restoration Project (Penns Woods West Trout Unlimited)	
2823	Borough of Mount Pleasant Stormwater Retrofit Project (Borough of Mt. Pleasant)	Project just underway. Designs being evaluated.
	Other	
2832	Watershed Implementation Plan BMP Implementation (Pa DEP)	Projects have not been selected to date.
	Base-Funded Implementation Projects	
	AMD	
2819	Emigh Run ER-8 AMD Treatment Project (Emigh Run/Lakeside Watershed Assoc)	Construction has begun

	Stormwater / Urban Runoff	
2826	Spring Run Stream Restoration Project (Fulton County CD)	Project has not started.
2827	Boyce/Mayview Stream Restoration (Upper St. Clair Township)	Project planning and design has begun.
2828	McLaughlin Run Stream Bank Stabilization Project (Borough of Bridgeville)	Project has not started.
2829	Villanova University Stormwater Wetland BMP Reconfiguration (Villanova University)	Project just underway. Designs being modeled and monitoring wells installed.
	Agriculture	
2830	Crawford County Agricultural BMP Initiative II (Crawford County CD)	BMP design being completed for projects.
2831	Limestone Run Watershed Restoration (Montour County CD)	Riparian BMPs completed with other funding. 319 design ongoing.

Semi-Annual Performance Report - July through December 2008 **FFY2008 Section 319 Grant - October 1, 2007 to September 30, 2011**

EPA Region III awarded the grant in November 2008.

The current grant closing date is September 30, 2011.

Project Number	**Project Title (Project Sponsor)**	**Current Status**
DELIVERABLES		
2809	**Urban Stormwater BMP Monitoring (Villanova University)**	**Final Report.**

Appendix C - Section 319 NPS Project Load Reduction Estimates

Appendix C includes estimates NPS pollutant load reductions for the FFY2001 through 2008 NPS Program grants.

Abandoned mine drainage (AMD), nitrogen, phosphorus and sediment load reductions are included for applicable projects in these grants. AMD and nutrient/sediment reductions are shown in separate tables.

FFY2001 Load Reduction Estimates – AMD Projects

	Iron (lb/day)	Aluminum (lb/day)	Manganese (lb/day)	Acidity (lb/day)
Project #				
2114	n/a	n/a	n/a	n/a
2118	0	0	0	0
2119	0	0	0	0
2120	264	44	4.3	893
2121	85	0	0	0
2122	0	0	0	0
2148	1.41	1.46	0	19.2
2155	0	0	0	0
Totals	**350**	**45.4**	**4.3**	**912.2**

n/a = load reductions do not apply to this project

FFY2002 Load Reduction Estimates – AMD Projects

	Iron (lb/day)	Aluminum (lb/day)	Manganese (lb/day)	Acidity (lb/day)
Project #				
2213	.49	1.26	0	11.53
2214	0	0	0	0
2215	9.8	5.4	0	0
2216	72.3	0	0	0
2217	2	20	2.5	183
2218	89	32	0	0
2219	0	0	0	0
Totals	**171.6**	**58.7**	**2.5**	**194.5**

n/a = load reductions do not apply to this project

FFY2003 Load Reduction Estimates - AMD Projects

	Iron (lb/day)	Aluminum (lb/day)	Manganese (lb/day)	Acidity (lb/day)
Project #				
2314	51.5	20.3	0	0
2315	n/a	n/a	n/a	n/a
2316	n/a	n/a	n/a	n/a
2317	1.34	0	0	0
2318	n/a	n/a	n/a	n/a
2319	Project removed from grant			
2320	0	0	0	0
2321	38.4	3.8	0	82.2
2322	2.6	6.6	0	1.5
2323	27	12.1	0	5.2
2324	8.16	6.5	0	0
Totals	**129**	**49.3**	**0**	**88.9**

n/a = load reductions do not apply to this project

FFY2004 Load Reduction Estimates - AMD Projects

	Iron (lb/day)	Aluminum (lb/day)	Manganese (lb/day)	Acidity (lb/day)
Project #				
2416	52	10	5.8	0
2417	0	0	0	0
2418	n/a	n/a	n/a	n/a
2419	0.5	11.4	4	143.7
2420	67.2	4.6	n/a	0
2421	538.1	30.7	152.9	0
2422	20.8	26.9	239.3	0
2423	0	167.7	0	1605.5
Totals	**678.6**	**251.3**	**402**	**1,749.2**

n/a = load reductions do not apply to this project

FFY2005 Load Reduction Estimates - AMD Projects

	Iron (lb/day)	Aluminum (lb/day)	Manganese (lb/day)	Acidity (lb/day)
Project #				
2512	.16	0	0	0
2513	.37	1.63	0	17.7
2514	231.4	0	14.5	0
2515	30.0	1.4	0	166
2516	0	3.5	3.1	82.9
2517	0	32.9	0	290.
2518	0	1.24	0	6.13
2519	0	2.7	0	27.4
2520	Project removed from grant.			
2521	n/a	n/a	n/a	n/a
2522	Project removed from grant.			
2523	458.6	0	0	0
2524	52.1	0	16.4	0
2525	184.7	14.8	0	0
2545 A	15.8	229	29	3366
2545 C	n/a	n/a	n/a	n/a
2545 D	0	0	0	0
Totals	**973.1**	**287.2**	**63**	**3,956.1**

FFY2006 Load Reduction Estimates - AMD Projects

	Iron (lb/day)	Aluminum (lb/day)	Manganese (lb/day)	Acidity (lb/day)
Project #				
2612	0	0	0	0
2613	10.25	11.23	0	144.7
2614	0	0	0	0
2615	0.22	1.97	0	26.85
2616	0	0	0	0
2617	2.9	1.0	0	0
2618	2.7	1.5	2.1	94.2
2619	0	0	0	0
2620	0	0	0	0
2621	0	0	0	0
2630 A	0	0	0	0
2630 B	0	0	0	0
2630 G	0	0	0	0
2630 H	52.1	0	16.4	0
2630 I	0	32.9	0	290
Totals	**68.2**	**48.6**	**18.5**	**555.8**

FFY2007 Load Reduction Estimates - AMD Projects

	Iron (lb/day)	Aluminum (lb/day)	Manganese (lb/day)	Acidity (lb/day)
Project #				
2710	5.2	8.9	0.1	60.3
2711	3.6	0.5	0.22	34.5
2712	1.5	2.1	0.5	13.4
2713	5.5	0	0	70.1
2714	4.1	5.5	0	74.5
2715	0.4	0.6	0	6.4
2716	0	256.4	0	0
2717	68.5	0	0	643.8
2718	Project removed from grant.			
2728	255.8	0	0	717.5
Totals	**344.6**	**274.**	**0.8**	**1620.5**

FFY2008 Load Reduction Estimates – AMD Projects

	Iron (lb/day)	Aluminum (lb/day)	Manganese (lb/day)	Acidity (lb/day)
Project #				
2810	25.5	10.1	0.5	133.4
2811	13.7	13.7	1.1	193.2
2812	0	0	0	0
2813	2.2	2.2	0	26.2
2814	0	0	0	0
2815	0	0	0	0
2817	0	0	0	0
2819	0.5	4.0	0	45.0
Totals	**41.9**	**30.0**	**1.6**	**397.8**

FFY2001 Load Reduction Estimates – Nitrogen, Phosphorus and Sediment

	Nitrogen (lb/year)	Phosphorus (lb/year)	Sediment (tons/year)
Project #			
2113	n/a	n/a	n/a
2123	1,527	514	339
2124	600	693	1,281
2125	22.4	7.4	4.7
2126	11,228	475	27
2127	n/a	n/a	n/a
2128	0	0	1,252.
2129	1,863	693	547
2130	2,549	608	75
2131	39,913	13,122	4,378
2132	0	0	2,900
2133	0	0	166
2134	0	0	2
2135	382	191	191
2136	Project removed from grant.		
2137	0	0	2.5
2138	Project removed from grant.		
2139	0	0	0
2140	0	0	142
2141	0	0	750
2142	0	0	140
2143	0	0	0
2144	0	0	0
2145	0	132	0
2146	n/a	n/a	n/a
2147	n/a	n/a	n/a
2149	34,405	9,085	2,076
2150	72,883	21,668	5,591
2151	187,313	72,588	216
2152	3,109	745	18.1
2153	2,500	4,000	650
2154	0	0	350
2156	n/a	n/a	n/a
Totals	**358,294.4**	**124,521.4**	**21,098.3**

n/a = does not apply to this project

FFY2002 Load Reduction Estimates – Nitrogen, Phosphorus and Sediment

	Nitrogen (lb/year)	Phosphorus (lb/year)	Sediment (tons/year)
Project #			
2220	0	0	270
2221	10,960	2,590	282
2222	3,197	527	29.6
2223	444	222	222
2224	101	22	12.2
2225	21,917	5,800	1,277.4
2226	17,450	3,058	0
2227	9,343	3,114	21.3
2228	3,291	1,562	102.5
2229	150,116	26,560	899
2230	0	66	0
2231	0	0	350
2232	410	204	204
2233	0	0	119
2234	40	7	750
2235	170	85	85
2236	24	12	12
2237	n/a	n/a	n/a
2238	0	0	249
2239	474	236	236
2240	0	0	203
2241	Project removed from grant.		
2242	Project removed from grant.		
Totals	**217,937**	**44,065**	**5,324**

n/a = does not apply to this project

FFY2003 Load Reductions – Nitrogen, Phosphorus and Sediment

	Nitrogen (lb/year)	Phosphorus (lb/year)	Sediment (tons/year)
Project #			
2325	8,576	12,517	64
2326	140	0	0
2327	22,920	7,383	961
2328	8,718	1,705	309
2329	12,733	12,000	0
2330	3,296	1,205	98
2331	0	0	776
2332	0	0	0
2333	0	0	5,300
2334	0	0	280
Totals	**56,383**	**34,810**	**7,788**

FFY2004 Load Reductions – Nitrogen, Phosphorus and Sediment

	Nitrogen (lb/year)	Phosphorus (lb/year)	Sediment (tons/year)
Project #			
2424	11,713	3,111	757
2425	14,802	4,053	354.4
2426	0	0	230
2427	0	0	1,348
2428	0	0	300
2429	0	35	46.5 (TSS)
2430	0	0	171
2431	0.9	0.6	281 (TSS)
2432	0	0	60
2433	Project removed from grant.		
2434	0	0	0
2435	440	80	111
Totals	**26,956**	**7,280**	**3,331**

Sediment 'Totals' do not include TSS from Projects 2429 or 2431.

FFY2005 Load Reductions – Nitrogen, Phosphorus and Sediment

	Nitrogen (lb/year)	Phosphorus (lb/year)	Sediment (tons/year)
Project #			
2526	3,621	829	115
2527	n/a	n/a	n/a
2528	15,047	3,845	1,005
2529	1,102	550	550
2530	2,970	1,890	54
2531	132	55	7.5
2532	n/a	n/a	n/a
2533	n/a	n/a	n/a
2534	0	0	320
2535	421	52	19
2536	0	24	0
2537	n/a	n/a	n/a
2538	Project removed from grant.		
2539	Project removed from grant.		
2540	n/a	n/a	n/a
2541	Project removed from grant.		
2542	0	0	0
2543	Project removed from grant.		
2544	0	0	10
2545	n/a	n/a	n/a
2545 B	0	0	981
Totals	**23,293**	**7,245**	**3,061.5**

n/a = does not apply to this project

FFY2006 Load Reductions – Nitrogen, Phosphorus and Sediment

	Nitrogen (lb/year)	Phosphorus (lb/year)	Sediment (tons/year)
Project #			
2622	9,829	2,042	551
2623	Project removed from grant.		
2624	Project removed from grant.		
2625	0	0	601
2626	7	18	1.1 (TSS)
2627	0	0	60
2628	0	0	0
2629	n/a	n/a	n/a
2630	n/a	n/a	n/a
2631	Project removed from grant.		
2630 C	1565	437	115
2630 D	3034	2016	1420
2630 E	0	0	750
2630 F	0	0	445
2630 J	0	0	0
Totals	**14,435**	**4,513**	**3,942**

Sediment 'Totals' do not include TSS figures from Project 2626.
n/a = does not apply to this project

FFY2007 Load Reductions – Nitrogen, Phosphorus and Sediment

	Nitrogen (lb/year)	Phosphorus (lb/year)	Sediment (tons/year)
Project #			
2719	3,309	1,007	432
2720	0	0	1,000
2721	n/a	n/a	n/a
2722	0	0	0
2723	n/a	n/a	n/a
2723 A	0	0	0
2724	0	0	0
2725	n/a	n/a	n/a
2727	n/a	n/a	n/a
2727 A	n/a	n/a	n/a
2727 B	n/a	n/a	n/a
Totals	**3,309**	**1,007**	**1,432**

n/a = does not apply to this project

FFY2008 Load Reductions – Nitrogen, Phosphorus and Sediment

	Nitrogen (lb/year)	Phosphorus (lb/year)	Sediment (tons/year)
Project #			
2809	1	1	410 (TSS)
2820	0	0	0
2821	0	19	2.25
2822	0	0	467
2823	0	0	0
2824	Project removed from grant.		
2825	Project removed from grant.		
2826	0	0	322
2827	0	0	0
2828	0	0	76
2829	0	0	0
2830	836	270	65
2831	4810	1232	166
2832	n/a	n/a	n/a
2833	n/a	n/a	n/a
Totals	**5,647**	**1,522**	**1,098**

The Totals amount for Sediment does not include the TSS figure from Project 2809.
n/a = does not apply to this project

Appendix D – 2008 Abandoned Mine Land and Abandoned Mine Drainage Reclamation Projects

The following is a list, by county, of the abandoned mine reclamation and acid mine drainage remediation projects completed in 2008 and the funding source for each project (OSM = U.S. Office of Surface Mining / GG = Growing Greener / BF = Bond Forfeiture):

ALLEGHENY COUNTY
South Fayette Township – Design of passive treatment system to treat the 400 gallon-per-minute Presto-Sygan mine discharge into the Chartiers Creek. $48,069 (GG)

ARMSTRONG COUNTY
Redbank Township – Charlestown Southwest. Reclamation of 12 acres of mine lands with 1,499 linear feet of dangerous highwall and 14 acres of mine spoil. $159,724.60 (OSM - $79,725 / GG - $80,000)

BUTLER COUNTY
Allegheny Township – Eau Claire Southeast. Reclamation of 1,500 linear feet of dangerous highwall and 12.1 acres of mine spoil. $226,290 (OSM-$197,000 / GG-$29,290)
Cherry Township – Annandale Southwest. Reclamation of 6,500 linear feet of dangerous highwall and 80.6 acres of abandoned mine lands. $1,558,729 (OSM)
Cherry Township – Coaltown South. Reclamation of 1,500 linear feet of dangerous highwall and 12.3 acres of abandoned mine lands. $200,398 (OSM-$145,492 / GG-$54,906)
Cherry Township – Findlay Run West. Reclamation of 23.2 acres of abandoned mine lands with 3,300 linear feet of dangerous highwall and 16 acres of mine spoil. $501,941 (OSM-$90,000 / GG-$411,941)
Slippery Rock Township - Slippery Rock South. Reclamation of 23.8 acres of mine lands including 3,000 linear feet of highwall. $269,543 (OSM-$80,000 / GG-$189,543)
West Liberty Township – West Liberty East. Reclamation of 4.8 acres of mine lands including a hazardous water body and 2 acres of mine spoil. $86,680 (OSM-$35,141 / GG-$51,539)

CAMBRIA COUNTY
Barr Township – Barnes Watkins Phase 2. Reclamation of 11.5 acres of mine lands and 16 acres of dangerous waste pile. $3,159,285 (OSM)
Chest Township – Wyerough Run North. Reclamation of 31.5 acres of mine lands with 4600 linear feet of dangerous highwall and 22.5 acres of spoil piles. $495,713 (OSM-$147,694 / GG-$348,019)

CENTRE COUNTY
Rush Township - Assessment and development of restoration plan for Shimel Run watershed. $15,000 (GG).
Snowshoe Township – Mine and reclaim 2.4 acres of mine lands containing 572 linear feet of dangerous highwall at bond forfeiture mine site on state game lands. No Cost

CLARION COUNTY
Clarion Township – Glacial Minerals Inc. (Reed). Reclamation of 12.4 acres of mine lands and a 150 gallon-per-minute acidic discharge. $1,169,577 (BF-$85,271 / GG-$1,084,306)
Clarion Township – Glacial Minerals Inc., (Strattanville). Reclamation of 14.3 acres of mine lands and a 200 gallon per minute acidic discharge. $1,694,566 (GG)

CLEARFIELD COUNTY
Beccaria Township – BCI Waterline Construction to provide potable water to 35 locations with water sources polluted by mining. $70,158 (OSM)
Boggs Township – Hill Coal Co. Reclamation of 34 acres of mine lands with 2,600 linear feet of highwall. $425,310 (OSM-$390,310 / BF-$35,000)
Boggs Township – Relocation of headwaters of Emigh Run away from mine spoil piles. $122,260 (GG)
Bradford Township – McDowell Mountain South. Reclamation of 54 acres of mine lands with 4,000 linear feet of dangerous highwall. $772,109 (OSM)
Cooper Township – Mine and reclaim 12.5 acres of abandoned mine lands containing 1650 linear feet of dangerous highwall. No Cost
Decatur Township – Mine and reclaim 26 acres of mine lands at bond forfeiture mine site. No Cost
Girard Township – Start-up of watershed group to advance the reclamation of Deer Creek. $1,400 (GG)
Goshen Township – Goshen South. Reclamation of 6.5 acres of mine lands with 650 linear feet of dangerous highwall and 5.5 acres of spoil piles. $110,268 (OSM)
Woodward Township – Sanbourn East. Reclamation of 4 acres of mine lands with 750 linear feet of dangerous highwall, a hazardous water body and 2 acres of spoil piles. $63,552 (OSM)

ELK COUNTY
Benezette Township – Dents Run. Reclamation of 54.9 acres of mine lands with 6,500 linear feet of dangerous highwall and 39 acres of mine spoil. $829,925 (OSM-$408,203 / GG-$421,722)
Benezette Township – Dents Run Winslow Hill. Reclamation of multiple mine discharges. $3,027,926 (OSM-$2,817,926 / GG-$210,000)
Multiple Sites - Collection of Powdered Metals from Iron Oxide (mine drainage) Sludge. $75,050 (OSM)
Horton Township – Design, construction and evaluation of additional sedimentation pond at the Brandy Camp Treatment Plant. $50,000 (GG)
Horton Township – Mine and reclaim 30 acres of abandoned mine lands containing 1,000 linear feet of dangerous highwall. No Cost
Jay Township – Kersey. Reclamation of 87.9 acres of mine lands with 4,850 linear feet of dangerous highwall, a mine opening and 16.5 acres of mine spoil. $2,684,487.09 (OSM-$570,300 / GG-$2,114,187.09)

FAYETTE COUNTY
German Township – Mine and reclaim 9.5 acres of subsidence area on abandoned mine lands. No Cost

German Township - Mine and reclaim 13 acres of subsidence area on abandoned mine lands. No Cost
Nicholson Township – Mine and reclaim 8 acres of abandoned mine lands containing 1300 linear feet of dangerous highwall. No Cost
North Union Township – Percy Mine Fire. Extinguish 70 acre underground mine fire. $3,554,000 (OSM)
Springfield Township – Kooser Road Water Line. Provide potable water to 31 locations with water sources polluted by mining. $298,904 (OSM-$114,459.53 / BF-$184,445)

INDIANA COUNTY
Center Township - Assessment & investigation of mine drainage remediation alternatives for the Sipos Mine on the Blacklick Creek. $27,000 (GG)
Conemaugh Township – Improvements to Big Run #2 passive mine drainage treatment system. $30,000 (GG)
Conemaugh Township - Improvements to Big Run #2 passive mine drainage treatment system. $44,000 (GG)
Grant Township – Mine and reclaim 2 acres of abandoned mine lands containing 475 linear feet of dangerous highwall on state game lands – No Cost
Rayne Township – Tanoma South. Reclamation of 2,000 gallon per minute mine discharge. $218,435.67 (OSM)
Young Township – Design and permitting of Whiskey Run #9 passive mine drainage treatment system. $24,000 (GG)

JEFFERSON COUNTY
Union Township - Site assessment & design of two passive mine drainage treatment systems. $40,000 (GG)
Washington Township – Mine and reclaim 15 acres of abandoned mine lands. No Cost

LACKAWANNA COUNTY
Olyphant Borough – Eddy Creek. Reclamation of 15.3 acres of mine lands and reopening of 1/10 mile of clogged stream. $3,781,418 (OSM-$274,526 / GG-$1,790,979 / Other State Funds-$1,715,913)

LUZERNE COUNTY
Hazle Township – Hollars Hill. Reclamation of 135.1 acres of mine lands with 3,500 linear feet of dangerous highwall, 2 mine openings, 13 acres of mine pit and 98 acres of mine spoil. $2,709,918 (OSM)
Hazleton City – Cranberry Ridge. Reclamation of 140 acres of mine lands with 3,300 linear feet of dangerous highwall and 2 acres of mine pit. $1,355,000 (OSM)
Jenkins Township – reclamation of 377 acres of abandoned mine lands to create industrial/commerce park. $200,000 (GG)
Swoyersville Borough – Harry E. Breaker. Reclamation of 29.2 acres of mine lands and removal of hazardous equipment and facilities. $394,026 (OSM-$190,000 / GG-$204,026)

MERCER COUNTY
Jackson and Lake Townships - Design and installation of aerobic wetland treatment system as part of the Fox Run restoration project. $80,000 (GG).

NORTHUMBERLAND COUNTY
Coal Township – Assessment and design of mine drainage treatment system to address the Maysville borehole in Ranshaw. $29,403 (GG)

SCHUYLKILL COUNTY
Cass Township – Remediation of sources of mine drainage to the Pine Knot-Oak Hill discharge tunnel. $200,000 (GG)
Girardville Borough - Design of passive mine drainage treatment system for Iron-Hydroxide recovery at the Packer #5 discharge. $60,000 (GG)
Pottsville City – North Slope Sharp Mountain Phase IV. Reclamation of 2,100 linear feet of dangerous highwall and 3.7 acres of mine pits. $422,510 (OSM-$375,424 / GG-$47,086)

TIOGA COUNTY
Bloss Township – Rehabilitation of Arnot #2 Anoxic Limestone Drain mine drainage treatment system. $21,731 (GG)
Ward Township – Design and permitting of mine drainage treatment system in the Fall Brook Creek portion of the Tioga River. $45,600 (GG)

VENANGO COUNTY
Irwin Township – Woods Corners. Reclamation of 38.3 acres of mine lands with 4,970 linear feet of dangerous highwall and 38.3 acres of mine spoil. $603,627 (OSM-$150,000 / GG-$453,627)

WESTMORELAND COUNTY
Salem Township – Mine and reclaim 12.2 acres of abandoned mine lands. No Cost
Unity Township – Modifications and improvements to the Monastery Run improvement project. $30,162 (GG)

REFERENCES

1. Nonpoint Source Management Program Plan-2008 Update
The document can be accessed through the Pa. DEP NPS Program website at http://www.depweb.state.pa.us/watershedmgmt/cwp/view.asp?a=1430&q=482303 .
The DEP website www.dep.state.pa.us also includes the document at Public Participation, Technical Guidance, ID #394-2000-002.

2. Environmental Protection Agency Strategic Plan for 2003-2008
The EPA Strategic Plan can be accessed through the EPA website at http://www.epa.gov/ow/waterplan/. The Plan includes measures for protecting and restoring water resources.

3. 2008 Pa. Integrated Water Quality Monitoring and Assessment Report
The 2008 Report is included on the DEP website at http://www.depweb.state.pa.us/watersupply/cwp/view.asp?a=1261&q=535678 . The Report includes the 2008 Integrated List of All Waters.